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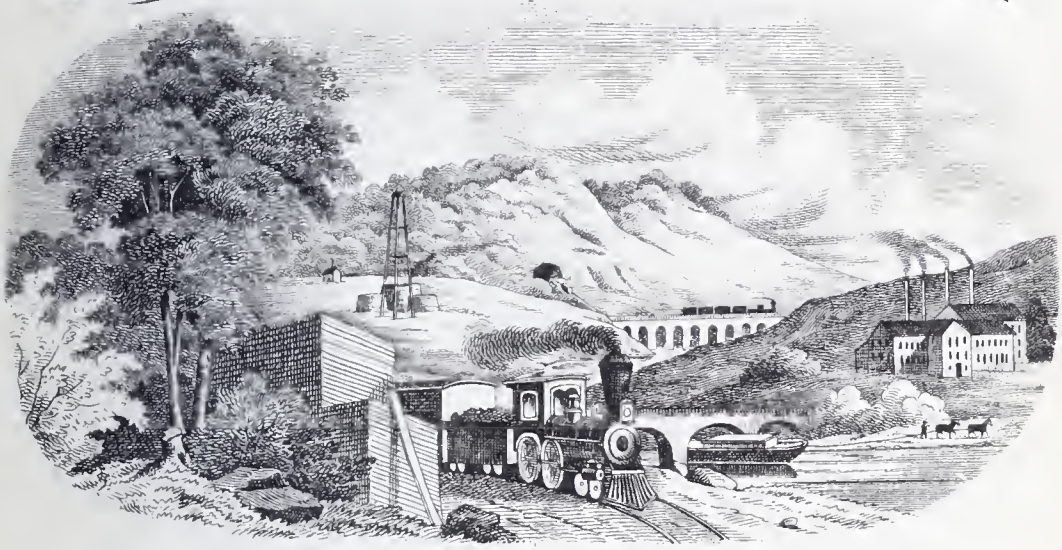
ANNUAL REPORT

OF THE

Secretary of Internal Affairs

OF THE

COMMONWEALTH OF PENNSYLVANIA



PART III.

INDUSTRIAL STATISTICS.

VOL. VII

1879-80.

HARRISBURG
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1881.

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REPORT

OF THE

BUREAU OF INDUSTRIAL STATISTICS.

DEPARTMENT INTERNAL AFFAIRS,
BUREAU OF INDUSTRIAL STATISTICS,
HARRISBURG, *March*, *1881.*

Honorable A. K. DUNKEL,
Secretary Internal Affairs:

SIR: I herewith have the honor to present the eighth annual report of the Bureau of Industrial Statistics, and the second under your official term as Secretary of Internal Affairs. With no improvement in the facilities, whereby information necessary to the fulfillment of the creative objects of the bureau could be attained, the report is necessarily imperfect and correspondingly inaccurate. So long as circulars mailed to those engaged in the various industries of our State are the only means by which information can be derived, just so long will the usefulness of the bureau be retarded, its influence diminished, and its statements be subjects of just criticism. The present report, while containing facts and statistics fully equal, if not greater, than any previous one, has in addition been considerably reduced in volume. This has been brought about by curtailing the number of tables, and so far as possible grouping the subjects in a condensed manner; thus, while much of unnecessary detail is omitted, the substance is retained in a comprehensive form. There is yet room for improvement in this particular, which demands and will receive attention in the future. Gathering information, like the "busy bee" upon the wayside, through the mediums of circulars, from other reports and books, from observation, and from individuals, does not afford that degree of perfect knowledge that a more efficient method, through personal visitation, would secure. The judgment of legislators, that culminated into a law, creating the bureau, and the incorporation, through the wisdom of the constitutional convention, of a provision into the fundamental law of the State, making an Industrial Bureau a part of the Department of Internal Affairs, coupled with its subsequent ratification by the people, establishes its permanency beyond all doubt. Its efficiency, however, can only be measured by the authority granted and the means given. Conscious of the very limited facilities

182906

INDUSTRIES.

INDUSTRIES.	Number issued.	Number returned.	INDUSTRIES.	Number issued.	Number returned.
Agricultural implements,	23	11	Match factories,	7	4
Air brakes,	1		Mill stones,	1	
Air gas machines,	1		Morocco,	5	3
Babbitt's metals,	3		Needles,	1	1
Belting and hose, (leather,)	6	3	Oars,	1	1
Bending works, (steam,)	1	1	Oil cloth manufactory,	1	
Boat builders,	3	2	Organs,	10	5
Boots and shoes,	21	5	Paint works,	23	16
Boxes, (cigar, paper, etc.,)	15	6	Paper mills,	47	24
Branding irons,	1		Patterns and moulds,	5	1
Brass foundries,	31		Peg factories,	2	1
Bridge building,	8	3	Pianos,	5	2
Brick-makers,	21	11	Plumbers' materials,	3	2
Carriages and wagons,	83	36	Plumbago,	1	
Cars,	25	8	Potteries,	9	3
Cigars,	8	4	Powder mills,	6	4
Coal mining, (anthracite,)	389	220	Printing and binding,	4	2
Coal mining, (bituminous,)	406	222	Pumps,	12	5
Cooperage,	23	11	Railroads,	108	73
Copper,	3	1	Rubber,	1	1
Cordage,	13	6	Rubberoid,	1	
Crackers,	4	3	Safes and locks,	8	3
Crucibles, (black lead,)	6	2	Salt works,	8	4
Cutlery,	1	1	Sand paper,	3	1
Dye works,	15	7	Sash and doors,	37	17
Fire arms,	8	3	Scales,	4	3
Fire brick,	26	11	Screens,	4	2
Furniture,	89	28	Sewing machines,	2	1
Glass, (window,)	32	8	Show cases,	6	4
Glass, (flint,)	42	16	Slate,	21	9
Glass, (green,)	14	2	Steel, (Bessemer,)	6	2
Glass, (moulds and presses,)	4	1	Steel, (crucibles, casts, etc.,)	19	9
Glue,	7	1	Steel castings,	2	
Hardware,	11	5	Steel, (manipulating,)	2	1
Harness,	32	13	Steel, (miscellaneous,)	2	1
Iron blast furnaces,	176	109	Stone quarries,	2	
Iron bolt and nut works,	8	4	Squib factory,	1	1
Iron boiler works,	29	4	Spoke works,	8	6
Iron bloomaries,	39	22	Sugar refineries,	2	1
Iron car wheels,	6	2	Tanneries,	515	181
Iron castings, (malleable,)	4	2	Terra cotta,	11	5
Iron chains,	5	2	Textile fabrics, (carpets,)	149	48
Iron, (corrugated,)	1		Textile fabrics, (cotton,)	136	75
Iron fences,	9		Textile fabrics, (hosiery,)	155	52
Iron forges,	14	8	Textile fabrics, (silk mills,)	54	18
Iron foundries,	302	122	Textile fabrics, (weaving,)	3	1
Iron, (galvanized,)	7	4	Textile fabrics, (woolen mills,)	302	143
Iron hinges,	2		Textile fabrics, (wool hats,)	23	7
Iron lightning rods,	2	1	Textile fabrics, (worsted yarns)	96	63
Iron machine and engine shops,	116	49	Tin ware,	1	
Iron rolling-mills,	135	66	Tobacco,	7	1
Iron roof frames,	1		Tools,	10	5
Iron ship building,	3	1	Transportation companies,	3	1
Iron spikes and rails,	4	2	Trunks and valise manufacturing,	7	2
Iron tacks,	1	1	Type foundries,	4	2
Iron tube works,	17	3	Umbrellas and parasols,	2	1
Iron wire works,	11	4	Watch cases,	7	2
Locks,	1		Whips,	5	
Locomotives,	6	3	Wooden ware,	14	8
Lumber,	606	255	Wood turners,	8	1
Marble,	28	12	Building and loan associations,	996	206
Marbleized mantles,	8	3			

OCCUPATIONS.

OCCUPATIONS.	Number issued.	Number returned.	OCCUPATIONS.	Number issued.	Number returned.
Blacksmiths,	56	29	Straighteners,	1	1
Blast furnace employes,	10	5	Roll-turners,	2	
Boiler-makers,	3	2	Shearmen,	3	
Book-binders,	2	1	Sheet-markers,	1	
Box-makers,	1		Forgemen,	8	2
Brass-finishers,	2	1	Hammermen,	3	2
Brick-layers,	11	2	Refiner,	1	1
Brick-makers,	9	4	Not designated,	18	4
Brick-moulders,	1	1	Nailers,	21	6
Bridge-builders,	2	2	Steel-melters, etc.,	14	8
Cabinet-makers,	7	4	Wire-drawers,	3	1
Car-inspectors,	3	2	Laborers,	25	12
Car-builders,	4	3	Machinists,	23	6
Carriage-builders,	1		Masons,	10	2
Carriage-trimmers,	4	2	Mill-wrights,	6	4
Carders and spinners,	21	2	Miners,	230	103
Carpenters,	48	20	Moulders,	26	6
Carpet-weavers,	8	3	Painters,	15	7
Caulkers,	3	2	Pattern-makers,	7	1
Chair-makers,	2	2	Plasterers,	10	3
Cigar-makers,	11	6	Plumbers,	3	1
Coopers,	11	5	Printers,	17	8
Dyers,	3	2	Railroad employes,	21	9
Engineers,	13	1	Sawyers,	6	2
Firemen,	7	3	Shoe-makers,	15	3
Glass-blowers,	22	7	Stone-cutters,	5	1
Glass-cutters,	2		Tailors,	5	2
Glass-workers,	8	1	Tanners,	12	4
Gunsmiths,	3	1	Tinners,	7	2
Harness-makers,	8	5	Wagon-makers,	6	3
Iron and steel-workers,			Watch-makers,	4	3
Puddlers,	60	17	Weavers—cotton,	20	6
Helpers,	11	3	Wheel-wrights,	4	
Heaters,	19	6	Whitesmiths,	1	
Rollers,	41	14	Wood-finishers,	2	1
Roughers,	1	1	Wool-sorters,	1	
Catchers,	2	2	Miscellaneous,	5	3

A TABULAR STATEMENT

Of the population, square miles, and number of acres in the several counties of the Commonwealth of Pennsylvania, with the names of the county towns.

NAMES.	Population 1870.	Population 1880.	Square miles.	Acres.	COUNTY TOWNS.
Adams,	30,315	32,454	531	339,840	Gettysburg.
Allegheny,	262,204	355,759	757	480,480	Pittsburgh.
Armstrong,	43,382	47,639	612	391,280	Kittanning.
Beaver,	36,148	39,603	452	289,280	Beaver.
Bedford,	29,635	34,932	1,003	641,920	Bedford.
Berks,	106,701	122,599	900	576,000	Reading.
Blair,	38,051	52,751	510	326,400	Hollidaysburg.
Bradford,	53,204	58,535	1,162	743,680	Towanda.
Bucks,	64,336	68,656	595	380,800	Doylestown.
Butler,	36,510	52,536	814	520,960	Butler.
Cambria,	36,569	46,824	666	426,240	Ebensburg.
Cameron,	4,273	5,159	381	243,840	Emporium.
Carbon,	28,144	31,922	402	257,280	Mauch Chunk.
Centre,	34,418	37,921	1,227	785,280	Bellefonte.
Chester,	77,805	83,480	763	488,320	West Chester.
Clarion,	26,537	40,326	572	366,080	Clarion.
Clearfield,	25,741	43,407	1,130	723,200	Clearfield.
Clinton,	23,211	26,278	857	548,480	Lock Haven.
Columbia,	28,766	32,408	479	306,560	Bloomsburg.
Crawford,	63,832	68,607	1,005	643,200	Meadville.
Cumberland,	43,912	45,978	554	354,560	Carlisle.
Dauphin,	60,740	76,148	523	334,720	Harrisburg.
Delaware,	39,403	56,102	195	124,800	Media.
Elk,	8,488	12,800	774	495,360	Ridgway.
Erie,	65,973	74,681	772	494,080	Erie.
Fayette,	43,284	58,852	830	531,200	Uniontown.
Forest,	4,010	4,385	431	275,840	Tionesta.
Franklin,	45,365	49,855	756	483,840	Chambersburg.
Fulton,	9,360	10,149	442	282,880	McConnellsburg.
Greene,	25,887	28,290	620	396,800	Waynesburg.
Huntingdon,	31,251	33,956	899	575,360	Huntingdon.
Indiana,	36,138	40,558	828	529,920	Indiana.
Jefferson,	21,656	27,935	646	413,440	Brookville.
Juniata,	17,390	18,227	407	260,480	Mifflintown.
Lackawanna,	71,401	89,268	424	271,360	Scranton.
Lancaster,	121,340	139,444	973	622,720	Lancaster.
Lawrence,	27,298	33,311	376	240,640	New Castle.
Lebanon,	34,096	38,476	354	227,840	Lebanon.
Lehigh,	56,796	65,969	364	232,960	Allentown.
Luzerne,	89,514	133,066	926	592,640	Wilkes-Barre.
Lycoming,	47,626	57,486	1,213	776,320	Williamsport.
McKean,	8,825	42,566	1,007	644,480	Smethport.
Mercer,	49,977	56,162	666	426,240	Mercer.
Mifflin,	17,508	19,577	377	215,680	Lewistown.
Monroe,	18,362	20,175	595	380,800	Stroudsburg.
Montgomery,	81,612	96,494	484	309,760	Norristown.
Montour,	15,344	15,466	140	89,600	Danville.
Northampton,	61,432	70,316	382	244,480	Easton.
Northumberland,	41,444	53,123	462	295,68	Sunbury.
Perry,	25,447	27,522	476	304,640	New Bloomfield.
Philadelphia,	674,022	846,982	130	82,603	Philadelphia.
Carried forward,	2,944,683	3,625,115	32,846	20,994,843	

TABULAR STATEMENT—*Continued.*

NAMES.	Population 1870.	Population 1880.	Square miles.	Acres.	COUNTY TOWNS.
Brought forward,	2,944,683	3,625,115	32,846	20,994,483	
Pike,	8,436	9,664	631	403,840	Milford.
Potter,	11,265	13,798	1,071	685,440	Coudersport.
Schuylkill,	116,428	129,977	840	537,600	Pottsville.
Snyder,	15,606	17,797	317	202,880	Middleburg.
Somerset,	28,226	33,146	1,102	705,280	Somerset.
Sullivan,	6,191	8,073	434	277,760	Laporte.
Susquehanna,	37,523	40,351	828	529,920	Montrose.
Tioga,	35,097	45,814	1,124	719,360	Wellsboro'.
Union,	15,565	16,905	315	201,600	Lewisburg.
Venango,	47,925	43,670	658	421,120	Franklin.
Warren,	23,897	27,981	914	584,960	Warren.
Washington,	48,483	55,417	889	568,960	Washington.
Wayne,	33,188	33,512	747	478,080	Honesdale.
Westmoreland,	58,719	78,129	1,046	669,440	Greensburg.
Wyoming,	14,585	15,598	403	237,920	Tunkhannock.
York,	76,134	87,839	921	589,440	York.
Total,	3,521,951	4,282,786	45,086	28,808,443	

NOTE.—The enumeration of 1880 is classified as follows, viz: Males, 2,136,635; females, 2,146,151; native, 3,695,253; foreign, 587,533; white, 4,197,106; colored, 85,680; total, 4,282,786.

☞ Pennsylvania is situated between 39 deg. 43 min. and 42 deg. north latitude, and 2 deg. 17 min. east, and 3 deg. 31 min. west longitude, from Washington. Its mean length is 280.39 miles; mean breadth, 158.05 miles; its greatest length, $302\frac{13}{40}$ miles, and greatest breadth, 175 miles and 192 perches.

The latitude of Greenwich is 51 deg. 28 min. 39 sec. north, and the latitude of Washington 38 deg. 53.3 min. The longitude of Philadelphia from Greenwich is 75 deg. 18 min. west, and the longitude of Greenwich from Washington is 77 deg. 00.6 min. east.

The latitude of the capitol at Harrisburg, as ascertained by recent observations made by the United States Coast Survey, is 40 deg. 15 min. 51 sec. longitude, 40.3 seconds of time east of Washington, and 5 h. 7 min. 31.8 sec. west of Greenwich.

THE ANTHRACITE COAL FIELDS OF PENNSYLVANIA AND THEIR EXHAUSTION.

(*Accompanied by Tables.*)

By P. W. SHEAFER, M. E., *of Pottsville, Pa.*

Coal is monarch of the modern industrial world, with its wonderfully diversified interests, and their ever expanding development. But, supreme as is this more than kingly power at the present time, comparatively brief as has been the period of its supremacy, and unlimited, in the popular apprehension, as are its apparent resources, yet already can we calculate its approximate duration and predict the end of its all-powerful but beneficent reign. This is especially the case with our limited Anthracite; the more widely diffused Bituminous having in reserve a much longer term of service—short indeed as a segment of the world's history, but so long, compared with an average human life, as to be of slight practical concern to the present generation.

The territory occupied by the Anthracite coal fields of Pennsylvania is but a diminutive spot compared with the area of Bituminous coal in Pennsylvania alone, to say nothing of its vast extent in other portions of the United States, and in Great Britain, France, and Belgium. The area of the Anthracite of the United States is but 470 square miles, not one-twentieth the size of Lake Erie, while the wide-spread Bituminous coal fields cover twice the area of our four great lakes; the Anthracite making but an insignificant showing on the map of the continent. But the comparison with the Bituminous area is deceptive, unless the relative thickness of the two is taken into consideration. If the Anthracite beds were spread out as thinly as those of the Bituminous region, they would cover eight times their present area, or 3,780 square miles. And, again, if the denuded spaces within the borders of the Anthracite coal fields were covered with a deposit of coal as thick as we may justly suppose they once were, and as the remaining still are, the available area would be increased to about 2,000 square miles, or 1,280,000 acres; equal to a coal deposit of 92,840,960,000 tons.

Contemplating the number and extent of the coal beds shown in the accompanying cross-section, a total thickness of 107 feet, distributed in fifteen workable beds, interstratified with a full mile in thickness of rock and shale, we are lost in wonder at the luxuriant growth of tropical plants required to produce this vast amount of compressed fuel, and the mighty processes of nature, by which it was placed in its present position. The

ingenuity of scientists is taxed to account for this wonderful accumulation of fuel, once vegetable, now mineral; once waving in fresh green beauty on the surface of the earth, now buried under hundreds of feet of solid rock; once growing in a level deposit of mud so plastic that the lightest leaflet dropping on its surface left its impress, now the mud hardened into slate, and the rank vegetation changed to hard and glittering coal, rising and falling in geologic hills and valleys, surpassing in number, depth, extent, sharpness of flexure and acuteness of angle, anything visible in the light of upper day.

Some slight idea of the growth of these ancient forests may be gained from the computation, that to form only one of these large beds of coal required a deposit of vegetable matter, perhaps one hundred feet in thickness. What shall we say then to the amount of vegetation stored away in the Mammoth bed, which extends through all three of the Anthracite coal fields, covering an area of 300 square miles, with an average thickness of twenty feet, and containing, it is estimated, 6,000,000,000 tons of coal?

Not less wonderful and interesting than the coal deposits is the grand floor of conglomerate which underlies them; a vast sheet of rock, infinitely old, composed of fragments of other rocks infinitely older, bound together by an almost imperceptible cement which holds them so firmly that gunpowder will scarcely separate them. Whence came this great sea of pebbles, water-rounded and water-borne, to their present resting place? We find them now as the current has dropped them—masses of silex as large as ten-pound cannon balls, and almost as round, so shapely have they been worn by the action of some ancient current. These were deposited first, and then, in regular order, trending to the southwest, came sizes graduated down to those of a pea and grains of sand.

This more than marble floor bears few saurian foot prints; scarcely an impress of bird, or beast, or fish, or sign of animal life. Nothing but a bed of almost pure silica; a solid foundation on which to build up the mass of rock and the fossil fuel that we call Anthracite, older than the hills and predestined for the use of coming man.

The pebble-laden flood ceased, and was followed by placid waters and gentle currents, bringing fine mud and silt to cover the rocky bed. Then the waters drained away, or the land rose, until fit for vegetable life, it was covered with the mighty flora of the carboniferous period. Again it sank, carrying with it its store of decayed and decaying vegetation, and another flood of pebbles rolled over it.

How many ages were consumed in the process so briefly described, who can tell? Nature's operations are on too vast a scale, and her working time too long to admit of hasty activity in the production of results. It may well be said that all the years since the creation of man would be too short a time to produce a bed of coal.

However long the process just described, it was of frequent repetition during the coal period; and thus we find pebble-beds, slate and coal in

Cross Section in the Southern Anthracite Coal Field of Pa.

Red Ash Coal, 3 ft — Sandrock.

" " 7 ft. — Gate.

" " 3 ft. — Little Tracy.

" " 6 ft. — Tracy.

" " 6 ft. — Diamond.

" " 3 ft. — Little Orchard.

" " 6 ft. — Orchard.

Grey Ash Coal, 10 ft — Primrose.

White Ash Coal, 5 ft. — Holmes.

" " 7 ft. — Seven Feet.

" " 25 ft. — Mammoth.

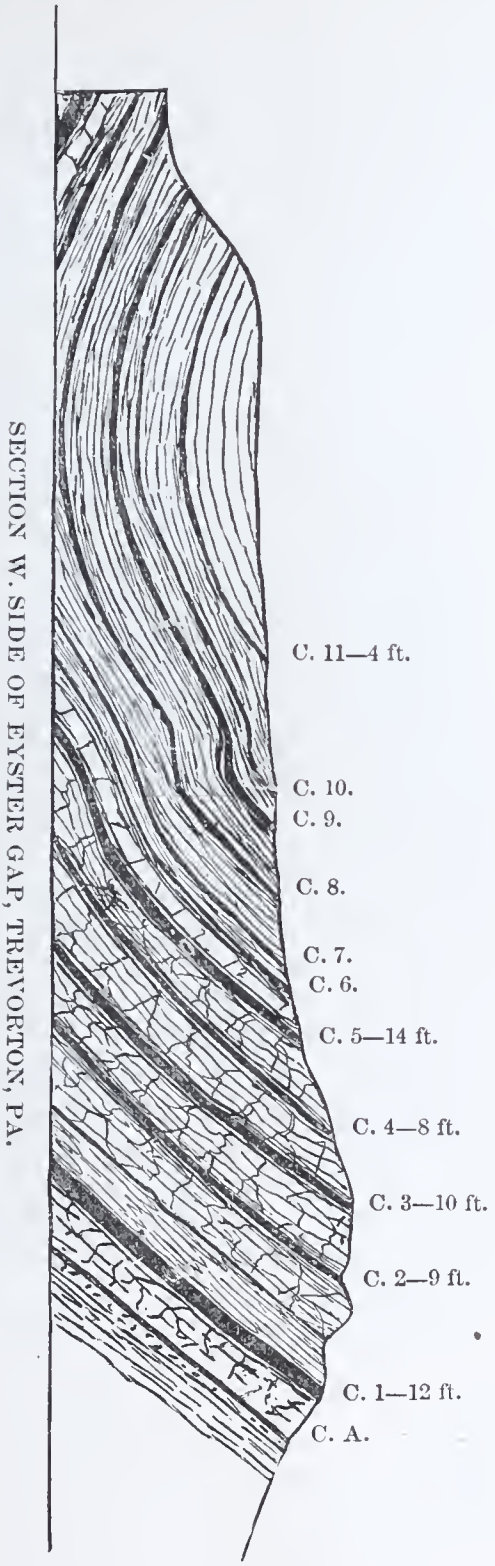
" " 6 ft. — Skidmore.

" " 9 ft. — Buck Mountain.

Red Ash Coal, 8 ft. — Lykens Valley, upp'r.

" " 3 ft. — Lykens Valley, low'r.

Total Coal, 107 ft.


SECTION W. SIDE OF EYSTER GAP, TREVORTON, PA.
C. 11—4 ft.
C. 10.
C. 9.
C. 8.
C. 7.
C. 6.
C. 5—14 ft.
C. 4—8 ft.
C. 3—10 ft.
C. 2—9 ft.
C. 1—12 ft.
C. A.

often recurring series, as in the following cross-section made at Trevorton, the western terminus of the middle anthracite coal basin.

But through all the changes of time and scene, the upheavals and depressions, the submergence and emergence of the land, we find a remarkable uniformity in the growth of plants, continuing almost without change throughout; sigillaria, lepidodendra, ferns, &c., following their kind, unvaried through successive series of strata, in each leaving their characteristic impress of stems and foliage on the enduring tables of the rocks. The coal flora is rich in variety and of great beauty, as Professor Lesquereux's careful research abundantly testifies. Their exact forms show a quiet condition of the waters, at least during the deposit of the slate covering of the coal beds; and the intervening rocks show the same facts. When impressions of the flora are found in the solid coal itself, we have the same evidence: but this is of rare occurrence. The best impressions usually occur in the smooth top slate covering the coal beds.

When we examine the arrangement of the Pennsylvania Anthracite beds we wonder at their complexity. Without evidence of volcanic disruption, not even a protruded trap-dyke, or extensive up or down-throw, we often find contortions and disturbances of the strata. The beds are rarely horizontal, but lie at every angle, and sometimes even pass the perpendicular and fold back upon themselves. In places they occupy our mountain summits, nearly 2,000 feet above the level of the sea, and again depressed more than 3,000 feet below it, making a variation of a mile in altitude. Yet the coal, which is the frailest material in all this rocky mass, is not destroyed, but generally in good workable condition—solid, almost crystalized, almost pure carbon, and frequently in beds too thick for economical working.

Faults in the Anthracite beds usually have a northwest and southeast direction, and show the beds compressed, and again correspondingly enlarged, but no sudden dislocations or breaking off of the strata. Soft coal, or dirt faults, are of common occurrence in the red ash or softer coals in the western end of the Anthracite fields.

The colored ash of burned coal is due, doubtless, to the presence of iron; but why this coloring matter is confined to the upper series of coals in the eastern portion of the range, and to the lower beds in the western district: and why there is a gradation in the middle district, from white ash in the lower, to grey in the middle, and red in the upper beds, are problems yet to be solved.

How shall we account for the great disturbance of the strata from their original horizontal position? Was it caused by volcanic force—of which there are no indications—or by contraction of the earth's crust? And if the latter, why is it confined to the Anthracite region, and not extended to the Bituminous also? And how shall we explain the isolation of the smaller coal fields, like those of Rhode Island, Richmond, Va., or Deep River, in North Carolina; or the disproportion in quantity between the

limited area of Anthracite and the wide-spread fields of Bituminous? Why do we find an abundance of shells and remains of animal life in the latter, and rarely any in the former? A few saurian foot-prints recently found at the Ellangowan colliery, in Schuylkill county, and a few shells found in the Glendower pit, in the Wyoming valley, are signal excepions to an almost universal rule. After an exploration, covering the period from 1835 to 1850, Prof. H. D. Rogers and his corps of assistants failed to find any other specimens. Neither has Prof. Lesley in his new geological survey of Pennsylvania, or the writer in an experience of thirty years' residence and active service, underground and in surface explorations, been any more fortunate.

Nor in all this area do we find a single workable bed of iron or limestone, and scarcely a covering of fertile soil. The coal once exhausted, nothing is left but the worthless shell, desolate and deserted.

The Anthracite region, mainly confined to one sixth the area of the four mountainous counties of Luzerne, Schuylkill, Carbon, and Northumberland, in Pennsylvania, is crowded with an industrious population, which increased fifty-one per cent. in ten years; that is from 229,700 in 1860, to 344,771 in 1870; whilst the four adjacent agricultural counties of similar area increased in the same time from 319,542 to 339,942, only six per cent. It is located on the parallel of 40° 30′, one hundred miles from any seashore, no part of it less than 500 feet above tide—near the head waters of the large rivers that drain it, the Susquehanna, Schuylkill, Lehigh, and Delaware. The noisy trains crossing the valleys and climbing the mountains all verge, day and night, to these hives of industry, where multitudinous steam engines are hoisting and pumping, and breakers crushing. Thousands of miles of railroad thread the surface and dive into the interior, to roll out the black diamond flood in millions of tons of fuel to warm and employ the nation.

The *fearful loss* of good material involved in mining and preparing Anthracite, as shown in the accompanying tables, though greatly to be deplored, seems to be almost inevitable. The disposition of the coal in large solid beds, and its highly inclined positions, involves stroug supports to keep the superincumbent mass from crushing and closing the avenues to the mines; and these supports must consist of massive pillars of the solid coal itself. Wooden props, however ponderous and strong, can only be used for the minor supports. Some of this pillar coal is ultimately removed, but much of it is inevitably lost, especially in the larger beds which frequently range from 20 to 40 feet in thickness, and are often inclined at an angle of from 40 to 70 degrees.

It is estimated that not more than 66 per cent. of the coal is ever taken out from the mines. That which is brought to the surface is run through a huge structure from 80 to 100 feet high, very appropriately called a "breaker," ingeniously contrived for the destruction of coal. There are over 300 of these immense buildings in the Anthracite region, costing on

an average $50,000 each, or an aggregate of $15,000,000. To the top of these the coal is hoisted, and then descends through a succession of rolls and screens, emerging at the bottom in a series of assorted sizes, from huge blocks of lump coal to unmerchantable dust, which forms a grievously large proportion of the whole. This process involves a loss of good coal, equal to 20 or 25 per cent., of the entire quantity mined. For the coal wasted in mining, say 40 per cent., and in preparing, 25 per cent., no one is paid; it is a total loss to landowner, miner and shipper.

Plans for utilizing the waste coal dirt, or culm of Anthracite collieries, have been frequently suggested, but none have come into general use. The Anthracite Fuel Company, at Port Ewen, on the Hudson, in 1877, used 90 per cent. coal dust and 10 per cent. fuel pitch, and made 300 tons of fuel per day, consuming over 50,000 tons of culm. The Delaware and Hudson Company also use at their mines 60,000 tons per annum. They now ship all their coal down to pea sizes, and consume the culm in generating steam. If all our coal companies would follow this excellent example it would enable them to sell half a million tons more coal, and burn the same amount of refuse, thus earning or saving a half million dollars per annum, to add to their revenues. The Philadelphia and Reading Railroad Company has recently introduced a method of burning coal dust in the furnaces of its engines, and the plan appears to meet with sucess.

The amount of water which drains into a mine from a mile or more of surface is enormous, for the average amount of rain and snow fall is 58,840 cubic inches per square yard annually, and the mines are liable to absorb not only the rain fall on the surface immediately over them, but all that which, by contour of the surface or by converging strata, tends toward them. On an average possibility five tons of water are hoisted for every ton of coal raised—another loss chargeable to mining.

The preponderance of waste coal, illustrated by the accompanying tables, seems excessive; but the writer's experience in surveys of certain tracts of land, and in preparing maps which shows the area exhausted, compared with the amount marketed from ten or more collieries, in a period of twenty years, proves that the loss is not over-estimated, especially in the Mammoth bed, whose average thickness is 25 feet. An eight-foot bed of coal yields much better in proportion. When they exceed six or eight feet in thickness, especially if steeply inclined, they are not only expensive to mine, but a large proportion of the coal must be left to support the rocky roof.

The Bituminous coals, particularly those of the United States, are not subject to these serious losses, and are quite cheaply mined and prepared. No breakers are required, as the only division is into coarse and fine coal, which are easily separated by screens; and the fine coal can be readily converted into coke, making a better condensed fuel than the coal in its natural shape. The bituminous beds are nearly horizontal and rarely more than six feet thick, so that it is not necessary to leave extensive pillars; and

as the coal is above water level, or in shallow basins, it is not necessary to put up extensive hoisting and pumping machinery. The simple, natural ventilation of American Bituminous mines also does away with the extensive and costly appliances for this purpose of Anthracite mines, in spite of which so many miners annually fall victims to the noxious gases.

AND NOW AS TO THE HARVESTING.

The total amount of coal still to be mined, according to the accompanying tables, is 26,361,076,000 tons. The total waste, as experience has shown, is equal to two thirds of the coal deposit, and reaches the appalling amount of 17,574,000,666 tons, leaving us only 8,787,075,333 tons to send to market. In all our calculations of Anthracite, we have counted the area as if in a level plain, and made no allowance for the undulations which must necessarily increase the amount of coal. But as many of the flexures are abrupt and broken, making much faulty and refuse coal, it will cover any overestimate of area or thickness we have made in our calculations.

Our tables show that 360,017,817 tons have been sent to market in the fifty-eight years from 1820 to 1878, inclusive. Our consumption now amounts to 20,000,000 tons annually. The increase of production for the past ten years has been 187,112,857 tons. At this rate we shall reach our probable maximum out put of 50,000,000 tons in the year 1900, and will finally exhaust the supply in one hundred and eighty-six years.

The present product of the anthracite coal fields is (1878) as follows:

Southern,	40 collieries,	1,229,081	tons.
Middle,	180 "	9,529,525	"
Northern,	128 "	7,680,990	"
Total,	348 "	18,439,596	"

At this rate the eastern end of the northern field is being rapidly exhausted. The middle field, too, which contains the lower productive coals, is likely to cease extensive mining about the year 1900; while the western portion of the northern field, extending from Pittston to the western end, and the southern field from Tamaqua to Tremont, comprising about 100 square miles, which contain more coal beds and deeper basins, must furnish the supply for the coming years.

Partially successful experiments have been made to use petroleum as a substitute for coal to some extent. But is it not already evident, under the reckless prodigality of production, that this occult and mysterious supply of light and heat and color will be exhausted before the Anthracite, and can, at best, only temporarily retard the consumption of the latter?

As already intimated, the question of the exhaustion of our coal supply is scarcely more at the present time than a curious and interesting calculation. It has not yet become so grave and portentous as in Great Britain, where a commission, with the Duke of Argyle, Sir Roderick Murchison and Sir W. G. Armstrong at its head, was recently appointed by Parliament

to ascertain the probable duration of the coal supplies of the kingdom. There it is serious, indeed; for when Britain's coal fields are exhausted, her inherent vitality is gone, and her world-wide supremacy is on the wane. When her coal mines are abandoned as unproductive, her other industries will shrink to a minimum, and her people become familiar with the sight of idle mills, silent factories, and deserted iron works, as cold and spectral as the ruined castles that remain from feudal times.

The modern growth and ultimate decadence of this great empire may be calculated from the statistics of her coal mines. In 1800 her coal product was about 10,000,000 tons; in 1854 it was 64,661,401 tons; and in 1877 it swelled to 136,179,968 tons. This period was a time of continued prosperity, when England ruled the world, financially and commercially. In the twenty-three years from 1854 to 1876, inclusive, she produced the enormous quantity of 2,210,710,091 tons of coal; and, more wonderfull still, exported only 222,196,109 tons—say ten per cent.—consuming the rest within her own borders.

The average increase of her annual out put has been $3\frac{1}{2}$ per cent. Will it so continue? Or has she reached the summit of her industrial greatness and commercial supremacy, and will they now decline, and with it, her naval and military power, the subservient agent, and, to a large extent, the creature and result of those great interests? Her coal product in 1878 was less by 1,587,905 tons than that of 1877. Is this the begining of the inevitable decline? There is reason to believe further, on account of the great depression in business, that the production of 1879 will be less than that of 1878.

Our anthracite product, compared with the coal product of Great Britain, is so small as to really seem insignificant. The English commission counts as available all coal beds over one foot thick—we count nothing under two and a half feet thick, nor below 4,000 feet in depth—showing a net amount in the explored coal fields of 90,207,285,398 tons; estimated amount in concealed areas, 56,273,000,000 tons; total, 146,480,285,398 tons, distributed as follows:—

	Explored.	*Unexplored.*	*Total.*
England,	45,746,930,555	56,246,000,000	101,992,930,555
Wales,	34,461,208,913	—	34,461,208,913
Scotland,	9,843,465,930	No estimate.	9,843,465,930
Ireland,	155,680,000	27,000,000	182,680,000
Total,	90,207,285,398	56,273,000,000	146,480,285,398

The exhaustion of this magnificient mass of coal at this present rate of increase, viz: three and a half per cent. per annum, is estimated by Professor Jevons as follows:

1876, actual output,	133,300,000 tons.
1886, estimated annual output,	186,600,000 "
1896, " " "	261,200,000 "
1906, " " "	365,700,000 "

1916,	estimated annual output,	. . . . .	512,000,000	tons.
1926,	"	" "	716,800,000	"
1936,	"	" "	1,003,500,000	"

Thus in sixty years the output would be nearly eight times the present amount, and about one fourth of the total amount to be found in Great Britain.

This vast estimate seems too enormous. It does not allow for great loss when cost of labor and much competition will prevent the working of small coal beds under two feet in thickness, or for the cost of mining when from 2,000 to 3,000 feet deep. Nor is it possible that Great Britain's industries and export trade combined will ever require so great a quantity. Modern discoveries and improvements, in applied science, tend to diminish the consumption. The 8,000,000 tons annually required for gas works may be materially reduced by the use of the electric light. The domestic consumption, now equal to one fourth the product, or 33,000,000 tons a year, may increase. But will not the iron manufactures be on the wane, and her coal exports—now ten per cent. of her coal product—fall off as those of other countries increase?

We have about 340 collieries, and produce 20,000,000 tons per annum, or about 60,000 tons each. Great Britain has nearly 4,000 collieries, and mines 132,000,000 tons, or 33,000 tons per colliery. The greater the yield per colliery the less the expense in mining. If we decrease the number of mines and increase their capacity not only to raise the coal, but to exhaust a constant current of foul air and dangerous gases, clouds of powder smoke and millions of gallons of water, we will reduce the cost of mining. Most of the Anthracite mining in the United States is now done at a less depth than 500 feet vertical; but as the coal nearer the surface becomes exhausted, the mines must go deeper and become more expensive.

What folly it is to boast of our world's supply of Anthracite, and feverishly endeavor to force it into foreign markets, when we can so readily foresee its end! Would it not be wiser to limit its product, restrict its sale to remunerative prices, and consume it at our own firesides, and in our own manufactures?

The monopoly of the Anthracite coal fields by some seven corporations, which, according to the accompanying tables, now control about two thirds of the whole, and the best coal area, must prove, under economic management, a profitable investment for their stockholders. Mining, selling and transporting their own coal, as they do, individual enterprise cannot hope to compete with them, and must vanish from the ground, and their only rivalry will be with each other, and with the Bituminous trade. Fortunately for the public, this rivalry will always be keen enough to keep the price of coal at a fair low rate of cost and profit.

The coal resources of Great Britain are all developed now, and in process of depletion; while in this country when our 470 square miles of Anthracite are exhausted, we have more than 400 times that area, or 200,000

square miles of Bituminous, from which to supply ourselves and the rest of mankind with fuel. The coal product of the world is about 300,000,000, tons annually. The North American continent could supply it all for 200 years. With an annual production of 50,000,000 tons, it would require twelve centuries to exhaust the supply. But with a uniform product of 100,000,000 tons per annum, the end of the Bituminous supply would be reached in 800 years. What the annual consumption will be when this continent supports a teeming population of 400,000,000 souls, as will be the case some day, must be left to conjecture. But with half that population, as energetic, restless, and inventive as our people in this stimulating climate have always been, under the hopes of sucess, such a country as this constantly holds out to tempt ambition and reward enterprise, it is a very moderate estimate, guided by the actual output already reached in Great Britain, to suppose that there will be ample use for one hundred million tons a year of Bituminous coal for home consumption alone.

If it be true, as Baron Liebig asserts, that civilization is the economy of power, we have it in our immense areas of Bituminous coal. There is no known agent that can answer as a substitute for the vast power and almost limitless usefulness of coal in its general adaptation to the wants of man; and that nation will maintain the foremost rank in enlightened modern civilization which controls, to the fullest extent, while it lasts, this wonderfull combination of light and heat and force. We are wiser than our fathers; and from the modest but sublime altitude to which we are lifted by physical science, and the far-extended range of mental vision which it opens up to us, we can see further into the plans of Providence than those who went before us, and can conjecture the early, if not the remote, future of the human race in our land and in other lands.

Happy that people whose legislators study the best mode of developing the natural resources of their country, and whose great men become great by improving the condition and promoting the welfare of the human race. The greatest of England's five Georges was not either of those who wore the crown, but plain George Stephenson, of Manchester, who rolled the world further along the path of progress than all the others; and none of the royal Jameses did half so much for the civilization of his country as James Watt, whose boyish study of the steaming tea-kettle developed the giant power that does the world's work with an energy that is tireless and irresistible.

OUT-PUT OF ANTHRACITE COAL FROM THE YEAR 1820 TO 1880, INCLUSIVE.

YEAR.	Schuylkill.	Lehigh.	Wyoming.	Total.
	Tons.	*Tons.*	*Tons.*	*Tons.*
1820,		365		365
1821,		1,073		1,073
1822,	1,480	2,240		3,720
1823,	1,128	5,823		6,951
1824,	1,567	9,541		11,108
1825,	6,500	28,393		34,893
1826,	16,767	31,280		48,047
1827,	31,360	32,074		63,434
1828,	47,284	30,232		77,516
1829,	79,973	25,110	7,000	112,083
1830,	89,984	41,750	43,000	174,734
1831,	81,854	40,966	54,000	176,820
1832,	209,271	70,000	84,000	363,871
1833,	252,971	123,001	111,777	487,748
1834,	226,692	106,244	43,700	376,636
1835,	339,508	131,250	90,000	560,758
1836,	432,045	148,211	103,861	684,117
1837,	530,152	223,902	115,387	879,441
1838,	446,875	213,615	98,207	738,697
1839,	475,077	221,025	120,300	818,402
1840,	490,596	225,313	148,470	864,384
1841,	624,466	143,037	192,270	959,973
1842,	583,273	272,540	252,599	1,108,418
1843,	710,200	267,793	285,605	1,263,598
1844,	887,937	377,002	365,911	1,630,850
1845,	1,131,724	409,453	451,836	2,013,013
1846,	1,308,500	517,116	518,389	2,344,005
1847,	1,665,735	633,507	583,067	2,882,309
1848,	1,733,721	670,321	685,196	3,089,238
1849,	1,728,500	781,656	732,910	3,242,966
1850,	1,840,620	690,456	827,823	3,358,899
1851,	2,328,225	764,224	1,156,167	4,448,916
1852,	2,637,835	1,071,136	1,284,500	4,993,471
1853,	2,665,110	1,054,309	1,475,732	5,195,151
1854,	3,291,670	1,207,186	1,603,478	6,002,334
1855,	3,552,943	1,284,113	1,771,511	6,608,517
1856,	3,603,029	1,351,970	1,972,581	6,927,580
1857,	3,373,797	1,318,541	1,952,603	6,664,941
1858,	3,273,245	1,380,030	2,186,094	6,759,369
1859,	3,448,708	1,628,311	2,731,236	7,808,252
1860,	3,749,632	1,821,674	2,941,817	8,513,123
1861,	3,160,747	1,738,377	3,055,140	7,954,314
1862,	3,372,583	1,351,054	3,145,770	7,875,412
1863,	3,911,683	1,894,713	3,759,610	9,566,006
1864,	4,161,970	2,054,669	3,960,836	10,177,475
1865,	4,356,959	2,040,913	3,254,519	9,652,391
1866,	5,787,902	2,179,364	4,736,616	12,703,882
1867,	5,161,671	2,502,054	5,325,000	12,991,725
1868,	5,335,737	2,507,582	5,990,813	13,834,132
1869,	5,725,138	1,929,523	6,068,369	13,723,030
1870,	4,851,855	3,172,916	7,825,128	15,849,899
1871,	6,314,422	2,115,683	6,683,302	15,113,407
1872,	6,469,912	3,743,278	8,812,905	19,026,125
1873,	6,294,769	3,243,168	10,047,241	19,585,178
1874,	5,642,180	4,047,656	9,290,910	18,980,726
1875,	6,281,712	2,834,605	10,596,155	19,712,472
1876,	6,221,934	3,854,919	8,424,158	18,501,311
1877,	8,195,042	4,332,760	8,300,377	20,828,179
1878,	6,282,226	3,237,449	8,085,587	17,605,262
1879,	8,960,329	4,595,567	12,586,293	26,142,689
1880,	7,554,742	4,463,221	11,419,279	23,437,242

ANTHRACITE COAL AREAS OWNED BY THE SEVERAL COMPANIES IN THE ABOVE FIELDS, AND THE PER CENT. OF THE WHOLE IN TONS.

NAME OF COMPANY.	Schuylkill.		Middle.		Wyoming.	
	Acres.		*Acres.*		*Acres.*	
Lehigh Valley.	. . . .	. . .	18,036	24 %	6,934	4 %
Lehigh and Wilkes-Barre, ...	7,600	8 %	7,000	8 %	7,400	5 %
Delaware and Hudson, ...	. . . .	. . .	. . . .	. . .	20,042	12 %
Delaware, Lackawanna and Western,	. . . .	. . .	. . . .	. . .	3,500	3 %
Pennsylvania Coal Company, ...	. .	. . .	. . . .	. . .	10,000	6 %
Philadelphia and Reading Coal and Iron Company, ...	65,306	70 %	23,250	32 %	. . . .	. . .
Pennsylvania Railroad Company, . .	6,000	6 %	9,000	9 %	5,823	6 %
Girard estate, ...	. . . .	. . .	6,000	8 %	. . . .	. . .
Gilbert & Co., ...	. . . .	. . .	1,373	2 %	. . . .	. . .
Alliance Coal Mining Company. . .	3,172	3 %	. . . .	. . .	. . . .	. . .
All others, ...	11,362	13 %	15,981	17 %	73,021	64 %
Total, ...	93,440	100 %	80,640	100 %	126,720	100 %

AREA OF ANTHRACITE COAL BASINS OF PENNSYLVANIA.

	Square miles.	
1. Southern coal fields, ...		146
2. Middle coal fields, Shamokin, ...	50	
Middle coal fields, Mahanoy, ...	41	
Middle coal fields, Lehigh, ...	37	
		128
3. Northern coal fields, ...		198
Total area of all basins, ...		472
Bituminous coal fields of the United States, ...		196,400

UNITED STATES COAL PRODUCT OF 1869 AND 1878.

	1869—Tons.	*1878—Tons.*
ANTHRACITE.		
Pennsylvania, ...	13,866,180	17,605,262
BITUMINOUS.		
Pennsylvania, ...	7,798,517	13,500,000
Illinois, ...	2,629,563	3,500,000
Ohio, ...	2,527,285	5,000,000
Maryland, ...	1,819,824	1,679,322
Missouri, ...	621,930	900,000
West Virginia, ...	608,878	1,000,000
Indiana, ...	437,870	1,000,000
Iowa, ...	263,487	1,500,000
Kentucky, ...	150,582	900,000
Tennessee, ...	133,418	375,000
Virginia, ...	61,803	75,000
Kansas, ...	32,938	300,000
Oregon, ...		200,000
Michigan, ...	21,150	30,000
California, ...		600,000
Rhode Island, ...	14,000	14,000
Alabama, ...	11,000	200,000
Nebraska, ...	1,425	75,000
Wyoming, ...	50,000	100,000
Washington, ...	17,844	150,000
Utah, ...	5,800	60,000
Colorado, ...	4,500	367,000
Total, ...	31,077,994	49,130,584
Total for 1879, anthracite, ...	26,142,689	59,808,400
Total for 1880, anthracite, ...	23,437,242	

COAL EXPORTS FOR THE FISCAL YEAR ENDING JUNE 30, 1878, UNITED STATES.

COUNTRIES.	Tons. Anthracite.	Tons. Bitumin's.
Austria,	202	
Brazil,	1,852	533
Central America,	11	94
Chili,	1,093	510
China,	3,659	
Danish West Indies,	1,497	11,360
France,	764	
French West Indies and Guiana,	240	615
Miguelan, &c., islands,	30	
Other French possessions,		1
Nova Scotia,	30,300	5,054
Quebec, Ontario, &c.,	268,378	214,982
British Columbia,	17	22
New Foundland,	98	
British West Indies and Honduras,	1,471	1,222
British East Indies,	454	
Hong Kong,	1,359	
Australasia,	10	
Hawaiian Islands,	842	257
Hayti,		713
Italy,	2,060	16
Japan,	706	
Mexico,	756	3,144
Dutch East Indies,	101	
Peru,	1,878	
Azores, Madeira,	325	
San Domingo,	434	297
Cuba,	17,983	62,613
Porto Rico,	43	32
United States of Columbia,	3,373	17,491
Venezuela,	630	581
Total,	340,566	319,537
Total, 1879,	421,594	221,669
Total, 1880,	411,706	198,413

A TABLE *showing the production, etc., of the Collieries in the Anthracite coal region of the State, compiled from operator's reports to this office, for the year ended December 31, 1880.*

NAME OF OPERATOR.	Number of acres of coal land owned or leased.	Number of acres of coal land worked.	Total number of persons employed.	Number of days in operation during the year.	Number of tons of coal produced.	REMARKS.
Carbon county.						
E. B. Leisenring,			246	169	110,003	
Do.			236	181	80,778	
Do.			255	183	110,712	
Do.			237	185	124,153	
George H. Myers & Co.,	200		238	187	141,409	
Lehigh Coal and Navigation Company,			353	176	83,540	No. 3 breaker.
Do. do.			248	179½	71,272	No. 5 breaker.
Do. do.			247	176	68,811	No. 6 breaker.
Do. do.			396	188	96,146	No. 8 breaker.
Do. do.			440	195	101,086	No. 9 breaker.
Do. do.			374	191	91,509	No. 10 breaker.
Do. do.			228	112¾	40,806	No. 11 breaker.
Columbia county.						
W. A. M. Grier,			84	87	11,129	Worked out December 31, 1880.
Daniel M. Bieber,			3	187	250	
Dauphin county.						
Lykens Valley Coal Company,			821	230	190,787	
Summit Branch Railroad Company,	2,676		595	243	230,988	
James Feunel,			18	290	2,568	
Lackawanna county.						
J. P. Williams & Co.,	50	4	10	120	2,500	Domestic trade.
Hillside Coal and Iron Company,	200	90	321		92,579	Located in Lackawanna county.
Do. do.	250	125	262	225	88,052	Located in Luzerne county.
Do. do.	1,000	25	53	220	18,014	Located in Susquehanna county.
Do. do.	550	100	231	166	60,484	Located in Lackawanna county.
Jones, Simpson & Co.,	630	300	248	194	69,666	
School Fund Association. (Limited,)		100	190	193	62,317	
Roaring Brook Coal Company,	50	150	231	190¾	88,414	

Pennsylvania Coal Company,	7,183	1,910	3,196	205	126,608 964,022	Dunmore. Pittston, Luzerne county.
Filer & Livey,	1,055	150	396	185	99,060.19	
William Connell & Co.,	500		550	178	174,511	
Luzerne County.						
Upper Lehigh Coal Company,	600	320	502	202	307,032	
I. Leisenring & Co.,			370	204	181,028	
Franklin Coal Company,	180	80	385	141	116,598	
H. Baker Hillman,		65	109	181	48,000	
Caleb S. Maltby,	430	30	301	191	86,333	
Robert S. Poole,		5	78	168	17,094	
H. C. Roberts & Co.,	220		292	168	106,113	
Phœnix Coal Company,	42	32	171	201	44,280	
Everhart Coal Company,	814	17	138	200	41,827	Leased by Waddell & Co.
The Butler Colliery Company,		159	187		59,000	
Pond Creek Coal Company,	80	4½	100	135	23,413	
Pardee Brother & Co.,			365		218,748	Slopes No. 1 and No. 2, days worked, 179 and 175.
Waddell & Walter,	200	75	113	176	46,253	
Red Ash Coal Company,	70	10	180	187	57,000	
J. C. Haydon & Co.,	800	400	490	190	180,030	For Lehigh Valley Coal Company.
R. L. Cartwright,	10	½	4		1,000	
Pittston Coal Company,	215		263	200		Working third vein. Two veins all worked.
Linderman, Skeer & Co.,			235	201	93,369	
Do. do.			37		6,125	No. 2 Colliery idle during 1880, on account of fire in the mines.
Do. do.			146	201	84,608	
M. S. Kemmerer & Co.,	150	17	275	210	125,946	
Susquehanna Coal Company,	785		288	242	91,786	Nearly one half the land is outside the coal measure.
Do. Do.			1,282	256	338,649	Total coal lands of collieries Nos. 1, 2, 3, and 5 and vicinity: Owned, 5,430 acres; leased, 600 acres; worked and to be worked, about 4,000 acres.
Do. Do.			727	256	339,074	
Salem Coal Company,		200	155	214½	40,000	
Pardee, Sons & Co.,			241	183¾	94,257.07	
Lehigh and Wilkes-Barre Coal Company,	123	90	259	151	97,035.09	Lance colliery.
Do. do.	790	190	738	180¼	281,271	Nottingham colliery.
Do. do.	315	115	331	187	125,718	Reynolds colliery.
Do. do.	300	10	363	178⅜	95,881.09	Holleubaek colliery.
Do. do.	350	200	714	167¼	248,250.13	Empire colliery.
Do. do.	220	20	608	184¼	203,675.15	Hartford colliery.
Do. do.	900	240	454	178⅝	129,981.03	Sugar Notch, No. 9 colliery.
Do. do.	415	70	425	96¼	64,642.04	Sugar Notch, No. 10 colliery.
Do. do.	304	150	340	167⅛	88,905.01	Wanamie, No. 18 colliery.
A. Pardee & Co.,			1,219		503,223.07	Includes all the mines operated by A. Pardee & Co.
Calvin Pardee & Co.,		20	217	179⅛	94,000	Land leased from Big B. C. Imp. Co.
Linderman, Skeer & Co.,			127	189	70,170.02	
Plymouth Coal Company,	158	78	144	148½	44,220	
Delaware and Hudson Canal Company,	270		230	141¾	66,204.07	Plymouth, No. 3.
Do. do.	230		252	187½	76,766.02	Plymouth, No. 2.
Do. do.	188		223	160¾	74,978.08	Plymouth, No. 4.
Do. do.	268		364	200¾	169,491.11	Plymouth, No. 5.
Do. do.	560		303	185¾	133,547.04	Baltimore tunnel.
Do. do.	343		69			Conyngham—new mine.

ANTHRACITE COAL—*Continued.*

NAME OF OPERATOR.	Number of acres of coal land owned or leased.	Number of acres of coal land worked.	Total number of persons employed.	Number of days in operation during the year.	Number of tons of coal produced.	REMARKS.
Luzerne County.						
Delaware and Hudson Canal Company,	641		254	187¼	104,406	Baltimore slope.
Do. do. do.	344		292	185¾	119,620.15	Laurel Run.
Do. do. do.	321		275	184	102,174.14	Pine Ridge.
Do. do. do.	469		363	184	139,053.03	Mill Creek.
Do. do. do.	430		576	185	194,179.19	Von Storch, Lackawanna county.
Do. do. do.	381		380	182¼	141,389.17	Legitt's Creek, do.
Do. do. do.	747		387	187¼	152,954.04	Marvine, do.
Do. do. do.	913		328	186¾	103,375.08	Olyphant, do.
Do. do. do.	810		355	189¾	125,795.19	Grassy Island, do.
Do. do. do.	1,045		317	187	118,571.11	White Oak, do.
Do. do. do.	1,501		478	188¾	170,500.19	Coal Brook, do.
Do. do. do.	961		141	188¾	6,488.08	Carbondale, No. 3, do.
Do. do. do.	923		302	186	21,203.02	Carbondale, No. 1, do.
Do. do. do.			75	179	134,098.13	Racket Brook Breaker Company. No coal mined, but prepared for market.
McNair & Co.,			202	174½	54,235.15	
Coxe Bros. & Co.,		30	88	186½	44,928.01	Woodside.
Do. do.		200	729	213¼	351,907.03	Cross Creek, Nos. 1 and 2.
J. H. Swoyer,	151	75	372	177	145,841.06	Wyoming.
Do.	629	60	300	176	94,703.01	Forty-Foot.
Northumberland County.						
Excelsior Coal Mining Company,		700	231	208	104,308	Working part of Fulton Coal Company's tract.
J. Langdon & Co.,		600	329	234	111,881	
Cruikshank & Emes,	400	80	147	194	29,231	
Kendrick & Co.,		500	230	198	80,930	
Tillet & Bro.,	151	30	11	260	2,000	
Douty & Baumgardner,		300	130	198	39,407	
M. R. R. and Mining Co.—Cameron colliery,		1,052	500	249	160,854	
Do. do. Luke Fiddler colliery,		955	360	238	118,643	
Do. do. Pennsylvania colliery,		1,625	352	257	105,882	
Smith & Kelser,			48		14,884	Mineral Railroad and Mining Company's lands.
William Schenck & Co.,	175	75	57	209	27,317	
H. J. Toudy,		400	160	166	26,550	
Enterprise Coal Company,	500	300	276	169½	82,576.03	

May, Audenried & Co.,		228	208	215	54,068	
Phila. and Reading C. and I. Co.'s collieries—						
North Franklin, No. 2,			327	160	63,180.05	
Bear Valley,			231	168½	53,300.07	
Burnside,			218	165¼	45,759.09	
George Fales,			79	155	1,677.00	
Reliance,			341	156	81,634.07	
Mount Carmal shaft,			501	177¾	142,999.13	
Locust Spring,			300	174	94,143.07	
Merriam,			375	181¾	83,098.13	
Columbia County.						
Keystone,			71	162½	2,730.10	
Potts,			285	156	77,623.03	
Bast,			314	193¾	102,089.13	
Schuylkill County.						
Tunnel,			71	16⅝	7.10	This colliery was engaged in sinking another lift. Men worked about 170 days.
North Ashland,			291	165¾	99,048.15	
Preston, Nos. 1 and 2,			297	121¾	41,437.07	
Preston, No. 3,			266	197	79,356.16	
Conner,			282	188¾	107,995.09	
Hammond,			220	185¾	70,649.19	
Girard,			242	194¼	81,894.13	
Girard Mammoth,			102	4⅛	722.11	Breaker worked four and a half days. Colliery being enlarged. Men employed about 170 days.
Indian Ridge,			485	190⅛	118,338.11	
Plank Ridge,			367	178	91,740.13	
Shenandoah City,			225	155½	52,689	
Knickerbocker,			251	182¾	100,323.05	
Ellangowan,			551	185½	187,261.18	
West Shenandoah,			332	19 ¾	111,042.11	
Turkey Run,			325	186¾	88,289.10	
Gilberton,			140	109¼	13,229.18	
Furnace,			124	157	35,336.07	
St. Nicholas,			258	176¾	62,408 04	
Bear Run,			232	107	39,277.16	
Boston Run,			196	183¼	67,956.03	
Tunnel Ridge,			106	46	3,458.17	
Mahanoy City,			288	194½	98,613.17	
North Mahanoy,			294	178	89,752	
Schuylkill,			16	55¼	9,266.06	
Eagle Hill,			239	160	56,427.16	
Pine Forest,			192	111¼	33,050.11	
Wadesville,			467	196	106,388	
Beechwood,			232	157¾	45,078.05	
Pottsville,			352	155¾	39,062.10	
Mine Hill Gap,			238	121½	35,028.18	
Thomaston,			376	171½	77,186.03	
Richardson,			303	165⅝	70,773.14	
Glendower,			238	106½	25,738.19	
Forestville,			6			Not shipping coal.
Phœnix Park, No. 2,			149	149	23,468.11	
Phœnix Park, No. 3,			166	97¾	18,771,01	

ANTHRACITE COAL—*Continued.*

NAME OF OPERATOR.	Number of acres of coal land owned or leased.	Number of acres of coal land worked.	Total number of persons employed.	Number of days in operation during the year.	Number of tons of coal produced.	REMARKS.
Schuylkill County.						
Phila. and Reading C. and I. Co.'s collieries—						
Otto,			202	99¼	35,639.09	
Pyne,			154	124¼	21,463.18	
East Franklin,			185	171	34,418.18	
Colket,			211	102¼	25,481.08	
West Brookside,			718	182½	308,616.04	
Layton S. Baldwin,		300	54	155	14,795	
Rabbe & Fey,		3	15	125	972	Lands of Lehigh Coal and Navigation Company.
John R. Davis,			38	260	10,126	Lands of Phila. and Reading Coal and Iron Company.
Atkinson & Lessig,			11	216	2,700	
Peter Laux, senior,		2	4	153	393	
Thomas Wren,	25	3	16	264	3,914	
Wood & Pearce,			62	200	15,000	Lands of Phila. and Reading Coal and Iron Company.
Louis Lorenz,	260		36	300	4,000	
Morgan & Brown,			7	168	1,070	Mines worked for over forty years.
Edward & George Brooke,		1,000	450	200	174,000	
Richard Heckscher & Co.,		240	397	210	159,813	
Draper colliery,		200	257	208	87,980	
Cambridge Coal Company,			21	187	5,402	
Edward L. Powell,	10	1	21	134		
Jones, Ward & Co.,			37	145	8,079	
Jeremiah Taylor & Co.,			381	194	114,227	
William H. Yohe,			5		894	
J. C. Haydon & Co.,	177½		240	165½	89,507	
Phillips & Sheafer,			226		76,027	
S. M. Heaton & Co.,			381	212¼	147,152	

Number of collieries to whom blanks were mailed,	389
Total number of collieries represented in foregoing tabulation,	220
Total number of persons employed,	49,366
Total production of coal (in tons) for the year ended December 31, 1880,	15,481,940.19

COAL—BITUMINOUS.

The total number of blanks mailed to coal operators and coke producers of the bituminous and semi-bituminous coal regions of the Commonwealth were four hundred and six. Of these there were returned two hundred and twenty-two. The increase in the number mailed over last year was seventy-two. The increase in returns is one hundred and twenty-six.

The returns received foot up as follows:

Total number of persons employed,	22,342
Total number of coke ovens,	4,340
Total number of tons of coke produced,	933,268
Total number of tons of coal produced,	8,379,561

The boundaries and characteristics of these coal fields is more fully set forth in the reports of the bituminous mine inspectors in another part of this volume. The total number of collieries reported in the three districts are four hundred and twenty-five. Twenty-four in the first district being reported idle.

Total (estimated) number of employés given,	33,391
Total (estimated) number of tons of coal produced,	16,564,440

The returns received are tabulated as follows:

A TABLE *showing the production, etc., of the collieries in the Bituminous coal region of the State, compiled from operators' reports to this office, for the year ended December 31, 1880.*

NAME OF OPERATOR.	Number of acres of coal land owned or leased.	Number of acres of coal land worked.	Total number of persons employed.	Number of days in operation during the year.	Number of coke ovens.	Number of tons of coke produced.	Number of tons of coal produced.	REMARKS.
Allegheny County.								
New York and Cleveland Gas Coal Company—								
Sandy Creek Mines,			252	202				
Oak Hill No. 4,	2,000	1,000	218	210			421,841	Acreage and production for all three mines.
Plum Creek No. 4,			212	197				
Corry & Co.,	20	20	93	160	40	7,500	19,400	
M. Graver & Co.,	200	13	139	224			50,804	Thirteen acres was worked during the year.
J. Weinman & Co.,	113	4½	29	264			16,002	Four and a half acres worked during the year.
John Etter,		1¼	12	264			5,089	
Imperial Coal Company,	1,000		440	270	60	7,692	154,953	
Grant Coal Company,		300	115	210			40,000	
Fort Pitt Coal Company,	110	7	100		16	1,325	14,377	Eight coke ovens idle.
National Coal Company, (limited,)	233	9	80	200			19,267	
Chartiers Valley Coal Company,	60	18	83	306			23,952	
Frank Armstrong,	88	8	82	250			34,000	
Hartley & Marshall,	430	315	204	262			116,633	
H. B. Hays & Bro.—Beck's Run,		3	153	25			11,462	
Do. Six Mile Ferry No. 2,		8	153	130			32,003	
Do. Six Mile Ferry No. 1,		9	158	130			34,343	
Joseph Walton & Co.—Habelman Mines,	75	17	177	159			64,427	
Do. Upper Works,	150	16¾	174	208			63,808	
Do. Lower Works,	150	19½	196	207			73,516	
Ithamar D. Risher,		10⅝	149	90			40,992	
William Neel's estate,	150	50	74	100			8,060	
William Stone's heirs,	250	345	154	225	5	2,700	67,857	
J. C. Risher & Co.,	480	320	191	154			68,542	
Bailey, Wilson & Co.,	300	10	115	130			44,285	
William J. Snodgrass,	272	4½	48	121			17,350	Four and a half acres worked in 1880.
James Lynn & Co.,	250	140	173	161			51,376	
T. B. Robbins & Co.,	500	90	188	225			48,120	Willow Grove mines.
Foster, Clark & Wood,	300		140	150			47,188	
Gumbert & Huey,	120	250	160	185			53,200	

Horner & Roberts,	600	200	244	251	...	.....	67,008	
George Jones & Co.,	140	100	81	162	..	.....	160	
James O'Neil,	500	...	142	190	...	.....	50,959	
Pennsylvania Salt Manufacturing Company,	456	150	59	292	6	1,700	35,800	
Jones & Laughlin,	..	...	125	277	...	.....	81,485	
John McIntyre,	368	78	247	274	...	.....	86,836	
William Duncan & Co.,	72	47	23	116	...	.....	5,726	
Pittsburgh and C. S. Railroad Company,	344⅓	19⅓	160	300	8	.....	72,938	
Penney Coal Company,	100	60	128	150	...	.....	52,000	
Beaver County.								
Scott & Co.,	150	100	120	200	...	.....	35,000	
I. F. Mansfield,	400	120	45	280	...	.....	25,000	
A. Davidson,	192	30	16	300	2	.....	3,259	
Bedford County.								
Sandy Run Coal Company,	943	4	64	264	...	...	30,717	
R. B. Wigton,	300	.....	44	...	...	....	13,088	Only worked part of the year.
Kemble Coal and Iron Company,	800	.....	43	300	88	10,000	19,400	Mines leased from Riddlesburg Coal and Iron Company.
Do.	....	....	65	300	...	12,475	25,550	
Blair County.								
Denison, Porter & Co.,	265	140	165	210		9,561	43,028	Coke made in pits.
Blair Iron and Coal Company,	539	287	278	305	100	41,422	113,143	Part of coke made in pits.
Glen White C. and L. Company,	900	....	61	308	80	21,168	28,229	
Bradford County.								
James McFarlane,	4,000	5	30	20	...	...	1,000	Only worked in December.
Towanda Coal Company,	.....	...	421	275	...	..	253,443	
Butler County.								
H. R. Fullerton,	100	1	13	300	1	100	4,000	One acre worked during the year.
Burnet Coal and Coke Company,	450	...	42	210	..	463	14,013	
Cambria County.								
Caron Leahey,	200	1¼	29	216	...	613	4,765	
J. C. Stineman,	200	10	29	300	...	.....	14,777	
W. H. Piper & Co.,	5,000	...	180	285	...	....	100,000	
S. H. Smith,	62	40	48	281	..	.....	35,797	
Bell's Gap Railroad Company,	433	..	118	310	...	.....	80,342	
John C. Martin & Co.,	4,000	2½	30	..	..	....	10,000	Started May 1, 1880.
R. I. Hughes & Co.,	.....	240	29	260		.....	190,200	Land owned by South Fork Coal and Iron Company.
Cambria Iron Company,	1,500	...	299	300	..	...	170,000	
Do.	150	....	117	...	102	29,800	38,000	
Do.	100	....	60	300	...	13,000	26,900	Coke made in pits.
Centre County.								
William J. Jackson,	700	....	74	300	...	.....	40,000	
P. B. Crider & Son,	100	10	3	.....	...	.....	200	
Clarion County.								
Clarion Coal Company,	250	....	21	200	...	.....	10,000	
T. J. Skidmore,	422	130	91	215	...	...	38,500	
Stephenson & Mitchell,	.....	.....	82	215	...	.....	32,634	

BITUMINOUS COAL—*Continued.*

NAME OF OPERATOR.	Number of acres of coal land owned or leased.	Number of acres of coal land worked.	Total number of persons employed.	Number of days in operation during the year.	Number of coke ovens.	Number of tons of coke produced.	Number of tons of coals produced.	REMARKS.
Clarion County.								
Pittsburgh Coal and M Company,	1,100	300	114	257			35,282	
Clearfield County.								
Kittanning Coal Company,	8,000		212	142			82,574	
Fisher Bros. & Miller,	650		180					
Webster Coal Company, (Limited,)	500		250	200			117,541	
T. Barnes & Bro.,		90	70	275			50,000	
H. J. Smith & Co.,	200	150	70	193			28,923	
Reakirt Bro. & Co.,	200	100	60	130			26,733	
Whitehead & Co.,	2,300	100	315	270		100	176,183	Pit coke.
Moshannon Coal Company,	600		111	175			53,352	
Elk County.								
James H. Mayo & Co.,	140		34	220			15,681	
D. Eldridge,	100	20	100	290			43,501	
St. Mary's Coal Company,	1,800	300	139	300			84,000	
N. W. Mining and Ex. Company,	20,000	100	291	270			167,372	
Fayette County.								
A. H. Sherrick,	136	30	41	280	70	18,500	35,000	
Pittsburgh and Connelisville Gas Coal & Coke Co.,			204		253	104,126	146,923	
H. C. Frick & Co.—Anchor mines,	160	20	85	270	100	30,000		
Do. Fonndry mines,	40	4	50	300	74	26,370	41,758	
Do. Henry Clay mines,	57	7	71	300	100	29,700	56,430	
Do. Frick mines,	59	7¼	78		106	38,232	72,355	
Do. Morgan mines,	20	12	96	300	164	58,446	92,545	
Do. Summit mines,	230	9	88	300	142	47,526	70,300	
Do. Eagle mines,	50	5½	58	300	80	23,760	45,144	
Do. Tip-Top mines,	65	11	43	287	56	20,000		
Do. Valley mines,	200	30	115	291	152	35,000		
Dunbar Furnace Company,	436	80	114	300	159	67,600	97,680	Hill Farm and Parish mines.
S. Colvin & Co.,	93	2	62	125	80	14,000	18,768	
J. M. Schoonmaker,			298	299	459		250,260	

Jackson Mines Company,	120	40	60	300	63	24,000	60,000	
Laughlin & Co.,	250	70	69	300	116	42,388	60,689	
Frazer & Frye,	163	10	70	171			3,666	
Turnbull & Hall,	300	150	190	250			40,000	
Winnett & Bortner,		40	30	48			3,916	
J. Cochran Sons & Co.,	45	20	19	296	35	12,381	20,104	
John S. Cunningham & Co.,	150		39	130			23,568	
Little Alps Coal Company,		40	83	176			39,113	
Hogsett, Hanna & Co.,	125	100	72	313	120	42,951	71,802	
Mahoning Coke Company, (Limited,)		6	56	273	100	35,185	52,203	
R. P. Clarke & Co.,	334	3	73	83			184,036	
James Rutherford,	38	8	25	200			20,000	
Fayette Coal Company,	360	60	54	300	100	30,000	40,000	
Huntingdon County.								
Rockhill Iron and Coal Company,	10,000		218	301	100	20,877	111,116	
Meors Brothers,	200	100	71	180			19,247	
Jefferson County.								
Reynoldsville Coal Company,		80	47	281			31,918	
Frank Williams & Co.,		75	32	290			21,615	
Elias Rogers,	75	1½	32	120			6,400	
Hamilton Coal Company,		20	80	185			60,412	
Powers, Brown, & Co.,	1,000	175	79	180	31	5,172	37,111	
Lawrence County.								
Neshannock Coal Company,		25	50	260			10,733	
D. Speers & Sons,	400	20	6	120			2,823	Land owned by R. H. Peebles.
W. B. Enos & Co.,	100	25	57	262			13,009	
Clinton Coal Company,	228	153	105	175			22,933	
Lycoming County.								
McIntyre Coal Company,	1,600		500	290	2		216,255	
Red Run Coal Company,	3,000							Not yet in operation.
McKean County.								
Buffalo Coal Company,		85	216	240			100,046	
J. E. Butts, agent,	1,000	100	75	307			28,790	
Mercer County.								
Buhl, Westerman & Co.	40	100	51	157			14,069	
Hoffman & Co.,	120	2	12	200			1	Worked out since August 1, 1880.
Carbon Coal Company,							3,000	
John Phillips & Co.,			44	107			5,144	Worked out in July, 1880.
Morris Coal Company,	30	50	60	130			6,526	
Mercer Iron and Coal Company,		300	212	248			67,732	
William Houston,	8		5	234			1,050	Seven hundred tons nut coal.
Thomas Laird,		4	16	169			2,078	
Bethel Coal Company,		250	289				23,102	Mines nearly exhausted. Are drawing pillars.
Somerset County.								
Keystone Coal Company,			92	280	1		53,000	
Cumberland and Elk Lick Coal Company,	1,580	25	94	160			65,950	

BITUMINIOUS COAL.—*Continued.*

NAME OF OPERATOR.	Number of acres of coal land owned or leased.	Number of acres of coal land worked.	Total number of persons employed.	Number of days in operation during the year.	Number of coke ovens.	Number of tons of coke produced.	Number of tons of coal produced.	REMARKS.
Somerset County.								
C. W. Williams,	12	6	23	290	. . .	. . . . .	22,300	
I. W. Williams,	15	8	20	275	.	. . . . .	11,500	
Tioga County.								
Morris Run Coal and Mineral Company,	6,000	800	602	250	. .	. . . . .	265,693	
Fall Brook Coal Company,	1,500	. . . . .	182	200	2	. . . . .	106,332	Fall Brook colliery.
Fall Brook Coal Company,	3,000	. . . . .	505	260	.	. . . .	199,679	Antrim colliery.
Blossburg Coal Company,	10,000	1,000	1,006	220	200	44,835	271,859	
Venango County.								
Tiel & McDowell,	175	25	10	178	. . .	. . . . .	3,409	
James Kenuedy, lessee,	266	30	26	270	. . .	. . . . .	5,914	
Washington County.								
W. P. Rend & Co.,	300	150	111	260	5	1,400	38,000	
Lindsey & McCutcheon,	162	. . .	61	162	. . .	. . . . .	18,200	
J. S. Neel,	. . . . .	200	117	240	. . .	. . . . .	3,200	
Scully & Co.,	. . . . .	10	112	228	. . .	. . . . .	57,300	
Jacob Legler,	80	4	32	312	. . .	. . . . .	4,500	
Knob Coal Company,	300	8	78	220	. . .	. . . . .	23,685	
Crowthers, Musgrove & Co.,	300	75	123	223	. . .	. . . .	48,000	
Blackburn & Mort,	200	65	66	190	. . .	. . . .	26,867	
Joseph Garrow,	12	8	17	212	. . .	. . . .	7,900	
V. Harding,	325	20	40	250	. . .	. . . . .	10,260	
Jonathan Allison,	140	20	40	200	2	200	20,000	
J. D. Santers,	28½	12	70	200	. .	. . . . .	32,927	
Pittsburgh and Walnut Hill Coal Company,	500	125	138	275	8	1,000	40,660	
Gamble & Risher,	350	10	90	213	. . .	. . . . .	34,200	Ten acres during the year.
F. H. Coursin,	. . . . .	. . . .	58	. . . . .	. . .	. . . .	17,100	
Westmoreland county.								
Laufman & Co.,	175	50	28	180	. .	. . . .	15,892	
J. R. Stauffer & Co.,	100	30	28	311	40	18,360	23,880	

Boyle & Rafferty,	300	100	261	286	261	118,976	181,710	
C. P. Markle & Sons,	60	30	14	300			10,231	
Youghiogheny Gas Coal Company,	360	3	85	310			26,000	
W. L Scott & Co.,	316	25	232	271	29		14,320	
Jacob Tomer, junior,			34				12,412	
John Gilmore,	190	25	132				45,462	
Greensburg Coal Company,	75	60	16	313	10	4,000	16,410	
M. Saxman, junior, & Co.,	100	50	62	310	30	14,000	54,272	
Isabella Furnace Company,	800	10	140	300	200	53,000	68,000	
The Saltsburg Coal Company,	925	35	125	297	8		80,942	
D. B. Ashbaugh, lessee,	250	130	90	290			80,070	8,400 tons slack.
S. W. Coal Company, (Limited,)	1,100	6	82	300	66		80,000	
Hurst, Stoner & Co.,	112	62	54	305	70	30,953	46,269	
Dillinger, Rafferty & Co.,	60	20	30	300	51	18,000	28,000	
C. P. Markle & Sons,	200	150	65	300	170		90,000	Bessemer works.
Jones & Watkins,	60		60	116			11,705	
Penn Gas Coal Company,	404	209	75	54			10,845	Penn mines.
Do. do.	664	331	226	150			91,622	Coal Run mines.
Do. do.	717	260	181				87,791	Shaft No. 1.
Do. do.	1,460	250	231	225			135,405	Shaft No. 2.
Do. do.	814	37	2					Shaft No. 3.
Do. do.	563	160	248	250			162,810	Youghiogheny, No. 4.
Phillips & Mettenzway,	175	80	66	130			20,224	
Joseph W. Clarke,	152½	10	67	150			34,200	
Millwood Coal and Coke Company,	649	71	117	200			71,250	
Fox, Kifer & Co.,	137		63	225	18	4,680	20,760	
N. I. Bigley, senior,	162	26	135	240			100,000	
Westmoreland Coal Company,	3,200	20	117	263			73,431	Foster slope.
Do. do.			39	310			34,718	Springfield mine.
Do. do.	1,600	280	747	283			282,167	Westmoreland shaft, and other mines.
Wyoming county.								
Stony Brook Coal Company,	60	1-20	2	56			200	A species of anthracite, too expensive to mine.

Number of collieries to whom blanks were mailed, ... 406
Total number of collieries returning blanks, ... 222
Total number of persons employed in collieries reporting, ... 22,214
Total number of coke ovens, ... 4,340
Total number of tons coke produced during the year 1880, ... 933,268
Total number of tons of coal produced during the year 1880, ... 8,327,561

IRON AND STEEL.

The iron interests of the country during the year have been marked by a commendable degree of activity. The great "boom" that prevailed in this industry at the opening of the year, as many predicted, soon ran its course, so that ere six months had rolled away the trade assumed its natural condition. The rapid advance in prices of raw material gave quite an impetus to foreign importation, in which many of our State manufacturers participated, only, however, to discover that, like all fictitious advances and values set upon great commodities, the end soon approaches, the bubble bursts, hard "pan" is reached, and business assumes its normal condition upon a basis sure and permanent. It is gratifying to know that while a limited number suffered through the rapid depreciation, of stock accumulated or bought, none were so seriously crippled as to necessitate a siege of idleness through insolvency; but happily they weathered the storm, and entered upon a course that guarantees, by close attention and frugality, future success and prosperity.

As the interests of both employer and employé are identical, each have been correspondingly benefited. Activity in trade insures to the workman steady employment and fair wages, both of which have been realized to a fair degree during the past year. In the districts conspicuous for iron and steel manufacture in its finished state, there has been no serious disruption over the question of wages. At the Crescent Steel Works, in the city of Pittsburgh, a difficulty arose among steel melters and others over a reduction of wages; a strike was the result. While it is said by the men that the strike still continues, the works are in full operation, the places of the strikers being filled almost immediately by new men. The harmony upon the wage question that so universally prevails in the mills both east and west throughout the State can be attributed principally to the scale of prices now in vogue, which regulates the price paid labor by the selling price of iron.

While this system may not, at all times, absolutely preclude difficulties and temporary disruptions upon the wages question, still the principle upon which it is formed is of itself so preëminently just that time, with its ever fruitful experience, will eventually place strikes and lock-outs among the things that are not to be.

A careful conscientious consideration of the wants and the just compensation of labor upon the part of the employer, and an unprejudiced, fair, and impartial study of the rights, privileges, and emoluments due the employer upon the part of the employés, at once brings both to a basis upon which they can build and regulate a system that must, from its very nature,

prolong the era of good will, harmony, and peace. We regret that we are unable to give detailed statistical information of the progress of these great industries in our State, embracing not only that of production; but also of the earnings and condition, social and otherwise, of the great army of workmen, who, by their labor, continually add to the wealth and prosperity of this grand old Commonwealth. Our inability to do so, however, is not surprising when we contemplate that the mail is the only method given us to attain the results sought for. However, our responses, while not complete in all their details, nevertheless give a fair exhibit of our capacity to produce, and of the ability of the mechanic, through his earnings, to support himself and those depending upon him. The Bureau is under special obligations to James M. Swank, Esquire, editor of "*The Bulletin*" of the American Iron and Steel Association, for tables showing the production of iron, steel, etc., in the State and country, as collected from the manufacturers by the association, and which will be found in the present report.

"The production of pig iron in the United States in 1880 was 4,295,414 net tons, or 3,835,191 gross tons. The production in 1879 was 3,070,875 net tons, or 2,741,853 gross tons. The increase in 1880 over 1879 was, therefore, 1,224,539 net tons, or 1,093,338 gross tons, or forty per cent. The production of 1879 was larger than that of any preceding year, but the production of 1880 was not only forty per cent. larger than that of 1879, but it was fifty per cent. larger than that of the two preceding most active years, 1872 and 1873, and it was *double* that of the centennial year, 1876, when the production of pig iron during the panic years reached its lowest point. The following figures, in net tons, will make these extraordinary facts plain to the eye:

PRODUCTION.

1872,	2,854,558	1877,	2,314,585
1873,	2,868,278	1878,	2,577,361
1874,	2,689,413	1879,	3,070,875
1875,	2,266,581	1880,	4,295,414
1876,	2,093,236		

Of the total production of pig iron in 1880, 1,807,651 net tons were made with anthracite coal; 1,950,205 tons with bituminous coal and coke; and 537,558 tons with charcoal. The increased production of the year over the product of 1879 was very evenly divided among the different fuels. It is, however, worthy of notice that the production of charcoal pig iron has increased *pari passu* with that of anthracite and bituminous pig iron. In the four years preceding 1880 it had declined relatively as compared with its two rivals. The charcoal iron product of 1880 has only twice been exceeded in our history—in 1873 and 1874, when the production was respectively 577,620 and 576,557 net tons. As has heretofore been the case, some of the anthracite furnaces used more or less coke in 1880 as a mixture, and a smaller number of bituminous furnaces used anthracite as a mixture. The exact quantity of pig iron produced in 1880 with this mixed fuel was 714,631 net tons.

Twenty-three States made pig iron in 1880, one more than in 1879, Minnesota entering the list for the first time with her Duluth charcoal furnace—the pioneer, we have no doubt, of many other iron enterprises in her borders. North Carolina has not made any pig iron since 1877. Oregon, with her Oswego charcoal furnace, doubled in 1880 her production of 1879. Another State, Colorado, has its first furnace, at South Pueblo, ready to be put in blast. California and Washington Territory are getting ready to make pig iron, a furnace in each being well under way. Utah Territory has made no pig iron since 1876, but the largest and best of its two furnaces, the one at Ogden, is likely to be blown in this year.

Every State in the Union which made pig iron in 1879, except one, increased its production in 1880. The exception was West Virginia, which made 70,801 net tons in 1879, and 70,338 tons in 1880. In 1879 Pennsylvania made fifty-two and one third per cent. of the total production; in 1880 her production declined relatively to forty-eight and a half per cent. Ohio made a very sharp advance in 1880 upon her record of 1879. In 1879, with a product of 447,751 net tons, her percentage of the total product of the country was fourteen and three fifths; in 1880, with a product of 674,207 net tons, her percentage was fifteen and seven tenths. The States which ranked next to Pennsylvania and Ohio in production in 1880, and which produced over 100,000 tons each, were New York, New Jersey, Michigan, Illinois, and Missouri, in order named."

CONDITION OF FURNACES, DECEMBER 31, 1880.

STATES.	In blast.	Out of blast.	Total.
Maine,	1	. . .	1
Vermont,	1	. . . . .	1
Massachusetts,	5	. . . . .	5
Connecticut,	8	2	10
New York,	44	13	57
New Jersey,	10	10	20
Pennsylvania,	189	85	274
Maryland,	10	13	23
Virginia,	13	24	37
North Carolina,	. . . .	7	7
Georgia,	4	6	10
Alabama,	13	2	15
West Virginia,	7	4	11
Kentucky,	8	14	22
Tennessee,	13	12	25
Texas,	1	. . . . .	1
Ohio,	76	27	103
Indiana,	3	1	4
Illinois,	8	5	13
Missouri,	5	11	16
Michigan,	14	13	27
Wisconsin,	11	3	14
Minnesota,	1	. . .	1
Colorado,	. . . . .	1	1
Utah,	. . . . .	2	2
Oregon,	1	. . . . .	1
Total,	446	255	701
CERTAIN DISTRICTS.			
Pennsylvania.			
Lehigh Valley,	41	9	50
Schuylkill Valley,	28	19	47
Upper Susquehanna Valley,	15	10	25
Lower Susquehanna Valley,	26	10	36
Shenango Valley,	13	17	30
Allegheny county,	11	4	15
Miscellaneous bituminous,	28	8	36
Charcoal,	27	8	35
Ohio.			
Hanging Rock region,	34	12	46
Mahoning Valley	13	4	17
Hocking Valley,	10	4	14
Miscellaneous,	19	7	26

PRODUCTION OF PIG IRON FROM 1872 TO 1880, BY STATES.

[Collected from the manufacturers by the American Iron and Steel Association.]

TOTAL PRODUCTION.

STATES.	MAKE OF PIG IRON IN NET TONS, (TONS OF 2,000 POUNDS.								
	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.
Maine,	.....	780	1,661	2,046	3,002	1,960	1,190	1,240	3,578
Vermont,	2,000	3,100	3,450	2,400	550	210	585	625	1,800
Massachusetts,	17,070	21,136	27,991	21,255	5,040	2,904	1,426	5,404	19,017
Connecticut,	22,700	26,977	14,518	10,880	10,160	14,443	15,880	16,759	22,583
New York,	291,155	296,818	326,721	266,431	181,620	230,442	247,698	239,056	395,361
New Jersey,	103,858	102,341	90,150	64,069	25,349	52,909	70,958	96,908	170,049
Pennsylvania,	**1,401,497**	**1 389.573**	**1,213,133**	**960.884**	**1,009.613**	**1,153.356**	**1,342,633**	**1,607.763**	**2,083,121**
Maryland,	63,031	55,986	54,556	38,741	19,876	26,959	24,027	37,237	61,437
Virginia,	21,445	26,475	29,451	29,985	13,045	12,434	16,928	18,873	29,934
North Carolina,	1,073	1,432	1,340	800	400	325			
Georgia,	2,945	7,501	9,786	16,508	10,518	13,223	16,363	20,373	27,321
Alabama,	12,512	22,283	32,863	25,108	24,732	41,241	41,482	49,841	77,190
Texas,	619	280	1,012	...	426	525	....	400	2,500
West Virginia,	20,796	23,056	30,134	25,277	41,165	34,905	50,667	70,801	70,338
Kentucky,	67,396	69,889	61,227	48,339	34,686	47,607	50,182	48,725	57,708
Tennessee,	42,454	43,134	48,770	28,311	24,585	25,940	28,347	41,475	70,873
Ohio,	399,743	406,029	425,001	415,893	403,277	400,398	420,991	447,751	674,207
Indiana,	39,221	32,486	13,732	22,081	14,547	15,460	....	11,303	12,500
Illinois,	78,627	55,796	37,946	49,762	54,168	61,358	78,455	78,143	150,556
Michigan,	100,222	123,506	136,662	114,805	95,177	82,216	70,853	101,539	154,424
Wisconsin,	65,086	74,148	50,792	62,139	51,261	22,205	49,887	89,522	96,842
Missouri,	101,158	85,552	75,817	59,717	68,223	73,565	47,499	84,637	105,555
Oregon,	.....	.....	2,500	1,000	1,750	.....	1,310	2,500	5,000
Minnesota,	.....	.....	.....	.....	.....	.....	.....	.....	3,520
Utah,	.....	.....	200	150	65				
Total,	2,854,558	2,868,278	2,689,413	2,266,581	2,093,236	2,314,585	2,577,361	3,070,875	4,295,414

ANTHRACITE.

Massachusetts,	4,250	5,432	10,214	11,140	.....	.....	.....	394	9,155
New York,	271,343	267,489	298,428	254,935	173,535	213,879	231,936	220,927	367,517
New Jersey,	103,858	102,341	90,150	64,069	25,349	52,909	70,958	96,908	170,049
Pennsylvania,	**968.453**	**913,085**	**775,008**	**554,992**	**588,829**	**658.521**	**783,731**	**939.569**	**1,237.930**
Maryland,	21,908	20,407	22,344	15,840	6,013	9,488	6,245	15,226	23,000
Virginia,	.....	4,000	6,000	7,070	852				
Total,	1,369,812	1,312,754	1,202,144	908,046	794,578	934,797	1,092,870	1,273,024	1,807,651

BITUMINOUS COAL AND COKE.

Pennsylvania,	**388,011**	**430,634**	**397,147**	**371,401**	**397,685**	**465,199**	**529,542**	**632,299**	**801,817**
Maryland,	12,079	5,264	7,209	1,751	.....	77	.....	2,277	5,387
Virginia,	.....	.....	.....	7,519	4,844	6,241	10,595	11,170	15,891
Georgia,	.....	.....	5,516	12,685	10,018	9,194	13,860	16,240	20,044
Alabama,	.....	.....	.....	.....	1,415	16,400	17,489	17,850	39,453
West Virginia,	19,816	21,106	26,734	24,177	40,865	33,655	50,261	70,601	67,093
Kentucky,	27,697	27,670	24,583	26,660	17,472	30,603	33,254	35,989	36,534
Tennessee,	8,360	8,602	11,543	10,300	14,517	14,732	17,120	33,908	54,198
Ohio,	304,121	305,531	332,166	353,922	351,346	358,281	387,478	404,306	6 5,017
Indiana,	39,221	32,486	11,632	20,381	12,869	14,200	.....	11,303	10,500
Illinois,	78,627	55,796	37,946	49,762	54,168	61,358	78,455	78,143	150,556
Michigan,	13,382	9,531	7,693	13,000	12,700	7,000			
Wisconsin,	37,246	35,268	21,819	36,656	25,000	.....	22,400	58,092	53,929
Missouri,	55,569	46,016	26,724	19,931	44,110	45,005	30,638	66,800	89,786
Total,	984,159	977,904	910,712	947,545	990,009	1,061,945	1,191,092	1,438,978	1,950,205

CHARCOAL.

Maine,	.....	780	1,661	2,046	3,002	1,960	1,190	1,240	3,578
Vermont,	2,000	3,100	3,450	2,400	550	210	585	625	1,800
Massachusetts,	12,820	15,704	17,777	10,115	5,040	2,904	1,426	5,010	9,862
Connecticut,	22,700	26,977	14,518	10,880	10,160	14,443	15,880	16,759	22,583
New York,	19,812	29,329	28,293	11,496	8,085	16,563	15,762	18,129	27,841
Pennsylvania,	**45,633**	**45,854**	**40,978**	**34,191**	**23,699**	**29,636**	**29,360**	**35,895**	**43,374**
Maryland,	29,044	30,315	25,003	21,150	13,863	17,394	17,782	19,731	33,050
Virginia,	21,415	22,475	23,451	15,396	7,350	6,193	6,333	7,703	14,043
North Carolina,	1,073	1,432	1,340	800	400	325			
Georgia,	2,945	7,501	4,270	3,823	500	4,029	2,503	4,133	7,277
Alabama,	12,512	22,283	32,863	25,108	23,317	24,811	23,993	31,991	37,737
Texas,	619	280	1,012	.....	426	525	.....	400	2,500
West Virginia,	950	1,950	3,400	1,100	300	1,250	406	200	3,245
Kentucky,	39,699	42,219	36,644	22,279	17,214	17,004	16,928	12,736	21,174
Tennessee,	34,094	34,582	37,227	18,011	10,068	11,208	11,227	7,567	16,675
Ohio,	95,622	100,498	92,835	61,971	48,931	42,117	33,513	43,445	69,190
Indiana,	.....	.....	2,100	1,700	1,678	1,260	.....	.....	2,000
Michigan,	86,840	113,975	128,969	101,805	82,477	75,216	70,853	101,539	154,424
Wisconsin,	27,790	38,880	28,973	25,483	26,261	22,205	27,487	31,430	42,913
Missouri,	45,589	39,536	49,093	39,786	24,113	28,560	16,861	17,837	15,769
Oregon,	.....	.....	2,500	1,000	1,750	.....	1,310	2,500	5,000
Minnesota,	.....	.....	.....	.....	.....	.....	.....	.....	3,520
Utah,	.....	.....	200	150	65				
Total,	500,587	577,620	576,557	410,990	308,649	317,843	293,399	358,873	537,558

PRODUCTION OF PIG IRON FROM 1872 TO 1880, BY STATES—*Continued.*

RECAPITULATION ACCORDING TO FUEL USED.

	MAKE OF PIG IRON IN NET TONS, (TONS OF 2,000 POUNDS.								
	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.
Anthracite,	1,369,812	1,312,754	1,202,144	008,046	794,578	937,797	1,092,870	1,273,024	1,807,651
Charcoal,	500,587	577,620	575,557	410,990	308,649	3.7,843	293,399	358,873	537,558
Bituminous,	984,159	977,904	910,712	947,545	990,009	1,061,945	1,191,092	1,438,978	1,950,205
Total,	2,854,558	2,868,278	2,689,413	2,266,581	2,093,230	2,314,585	2,577,361	3,070,875	4,295,414

PRODUCTION OF PIG IRON IN CERTAIN DISTRICTS.

Pennsylvania.									
Lehigh Valley,	449,663	389,969	310,789	280,360	261,274	335,059	416,907	456,350	544,987
Schuylkill Valley,	232,225	236,409	232,420	123,184	144,959	155,434	144,558	191,748	306,926
Upper Susquehanna,	127,260	129,304	88,243	71,731	79,217	56,776	84,547	125,971	168,128
Lower Susquehanna,	159,305	157,403	137,556	79,717	103,369	111,252	137,719	165,500	217,889
Shenango Valley,	160,188	160,831	156,419	137,025	138,495	145,179	122,958	150,861	215,313
Allegheny county,	110,599	158,789	143,660	131,856	128,555	141,749	217,299	267,315	300,497
Miscellaneous coke,	117,224	111,014	97,068	102,520	130,635	178,271	189,285	274,123	286,007
Charcoal,	45,033	45,854	40,978	34,491	23,099	29,636	28,309	35,895	43,374
Ohio.									
Hanging Rock coke,	23,169	28,601	26,015	36,899	44,260	44,541	31,137	43,097	00,316
Mahoning Valley,	152,756	136,972	121,403	115,993	137,546	136,520	134,400	147,844	226,877
Hocking Valley,	....	....	....	1,250	7,483	23,895	05,690	51,908	85,719
Miscellaneous coke,	128,196	139,953	184,748	199,780	165,057	153,316	156,251	161,457	232,105
Hanging Rock charcoal,	87,440	92,365	85,873	57,413	42,822	40,2 2	23,513	43,445	64,854
Miscellaneous charcoal,	8,182	8,133	6,962	4,558	6,109	1,905	.....	....	4,336

THE PRODUCTION OF BESSEMER STEEL IN THE UNITED STATES IN 1880.

"The total quantity of Bessemer steel ingots produced in the United States in 1880 was 1,203,173 net tons, or 1,074,262 gross tons, against 928,972 net tons in 1879, 732,226 net tons in 1878, and 560,587 net tons in 1877. The increase over 1879 was 274,201 net tons, or thirty per cent.; over 1878 it was 470,947 net tons, or sixty-four per cent.; over 1877 it was 642,586 net tons, or one hundred and fifteen per cent. The production of Bessemer steel ingots in this country from 1872 to 1880 was as follows, in net tons:

1872,	120,108	1877,	560,587
1873,	170,652	1878,	732,226
1874,	191,933	1879,	928,972
1875,	375,517	1880,	1,203,173
1876,	525,996		

The total quantity of Bessemer steel rails produced by these eleven works in 1880 was 917,592 net tons, or 819,279 gross tons, against 683,964 net tons produced by the whole country in 1879, 550,398 net tons in 1878, and and 432,169 net tons in 1877. The total Bessemer steel rail production of the country from 1872 to 1880, not including rails rolled by iron-mills in 1880 from purchased blooms, was as follows, in net tons:

1872,	94,070	1877,	432,169
1873,	129,015	1878,	550,398
1874,	144,944	1879,	683,964
1875,	290,863	1880,	917,592
1876,	412,461		

Several iron rolling-mills rolled Bessemer steel rails in 1880 from purchased blooms, and reports of their operations have not yet been collected from those establishments, but perhaps 50,000 net tons of such rails may have been rolled by them last year.

Although the Bessemer steel production of 1880 was very large, it will be greatly exceeded in 1881. The Vulcan Steel Works, at St. Louis, did not get into operation until March 10, 1880; this year they will make full time. All the other old works are improving on their production of last year, and some of them will have an enlarged plant at work, notably the Bethlehem Iron Company and the Pennsylvania Steel Company. Several new Bessemer steel establishments will get to work in 1881, the Pittsburgh Bessemer Steel Company, Limited, being now about ready to begin production with a capacity of 60,000 gross tons of ingots a year, while the North Chicago Steel Company and the Colorado Coal and Iron Company are pushing their works to completion as rapidly as possible, with a prospect of turning out Bessemer steel before the snow of another winter will have made its appearance."

BLAST FURNACES.

TABLE *exhibiting the characteristics, production, etc., of Blast Furnaces, compiled from operator's reports to the Bureau, for the year ended December 31, 1880.*

NAME OF FURNACE OR WORKS.	Number of stacks.	Height of stacks feet.	Diameter of bosh—feet.	Number of tuyeres.	Temperature of blast.	Kind of fuel used.	Grade of iron produced.	Number of persons employed.	Days in operation during the year.	Number of tons of iron produced.	KIND OF ORE, &C.
Adams county.											
Chestnut Grove,	1	32	8.4	1	Cold,	Charcoal,	Car wheel,	17	182	550	Put in blast July, 1880. Ores used, brown hematite and magnetic.
Allegheny county.											
Eliza,	2	62	14	4	Hot,	Coke,	Forge,	116	325	50,354.720	Lake Superior ores.
		62	16.6	4	Hot,	Coke,	Forge,				
Isabella,	2	75	20	7	Hot,	Coke,		200	150 365	41,105	Lake Superior ores.
Shoenberger,	2	62	13.6	4	Hot,	Coke,	Forge, foundry and Bessemer.	75	121	26,018	Lake Superior ores.
		62	14.6	4	Hot,	Coke,		75	323		
Armstrong county.											
Rebecca,	1	60	16	6	Hot,	Coke,	Neutral,	54	184	11,133½	1-5 Lake, and native ores.
Stewardson,	1	43½	11	4	Hot,	Coke,	Forge and foundry,	80	365	4,300	Limestone ores.
Bedford county.											
Kemble,	2	60	13.6	4	Hot,	Coke,	Foundry and neutral forge.	150	284	12,433	Fossil ores, red and brown hematite.
		60	14.6	4	Hot,	Coke,			205		
Berks county.											
Bechtelsville,	1	58	15	5	Hot,	Anth. coal & coke.	Foundry and grey forge.	57	312	8,946½	Magnetic and hematite ores.
Keystone,	2	50	16	5	Hot,	Anthracite,	A No. 1,	73	365	18,680	Hematite and magnetic.
		50	14	5	Hot,	Coal and coke,	A No. 1,				Neutral ores.
Lecsport Iron Works,	1	58	15.8	6	Hot,	Anth. coal,	Foundry,	37	199	4,907	¾ Hematite and ¼ magnetic.
Rockland,	1	30	8.6	1	Cold,	Charcoal,		13	201	1,060	Hematite and magnetic.
Monocacy,	1	50	14.6	6	Hot,	Anth. coal,	Foundry,	41	365	8,129	75 per cent. hematite, 25 per cent. magnetic.
Moselem,	1	50	12	5	Hot,	Anth. coal,	Foundry,	20	227	3,900	75 per cent. hematite, 25 per cent. magnetic.
Mt. Laurel,	1	50	11	3	Hot,	Anth. coal,	Foundry,	34	335	4,013	Went into blast February 1, 1880.
Oley,	1	29	8	1	Cold,	Charcoal,	Car wheel,	18	344	1,515	

Berks county.											
Reading Iron Works,	2	55	16	6	Hot,	Anth. coal,	Nos. 1 and 2, and	83	165	18,465	
		55	15	5	Hot,		No. 3 forge.		365		
Robesonia,	1	50	14	6	Hot,	Anth. coal,	Bessemer,	59	231	6,326	Cornwall ore—magnetic.
Temple,	1	65	14.6	6	Hot,	Anth. coal,	Foundry,	36	365	8,469	Brown hematite ores.
Hopewell,	1	40	6	1	Cold,	Charcoal,	Car wheel,	30	200	550	Magnetic and hematite ores.
Maiden Creek,	1	30	8.6	1	Cold,	Charcoal,	Car wheel,	53	365	2,016	Magnetic and hematite ores.
Union,	1	30	8.6	1	Cold,	Charcoal,	Car wheel,	14	275	1,235	Moselem, Leesport, and Hibernia ores.
Blair county.											
Blair Iron and Coal Company,	4	59	13	4	Hot,	Coke,	Bessemer and mill,	209	361	25,856½	Hematite and fossil ores.
		51	10.4	4	Hot,	Coke,			345		
		45	10	4	Hot,	Coke,			347	4,983	
		41	9.8	4	Hot,	Coke,			304		
Juniata,	1	30	8.6	3	Hot,	Anth. coal,					Not in operation in 1880.
Rodman,	1	61	14.6	6	Hot,	Coke,	Bessemer and mill,	100	347	10,629	Hematite ore.
Springfield,	1	33	8.6	2	Hot,	Charcoal,	Nos. 1, 2 and 3,	80	365	1,800	Brown hematite.
Bucks county.											
Durham Iron Works,	1	75	20	7	Hot,	⅛ coke & ⅞ anth.	Grey forge,	330	320	23,815	⅞ Magnetic, ⅛ hematite.
Centre county.											
Howard Iron Works,	2	30	8	1	Cold,	Charcoal,	Car wheel, foundry	100	330	1,943	Hematite ores.
		35	8	2	Cold,	Charcoal,	and forge.				
Chester county.											
Isabella,	1	32	7.5	1	Cold,	Charcoal,	Car wheel,	6	30	42	Only in blast during December, 1880.
Columbia county.											
Bloom,	1	48	14.6	4	Hot,	Anth. coal,	Foundry and forge,	40	355	8,016⅔	Fossil ores, hard and soft.
Irondale,	2	36	12	5	Hot,	Anth. coal,	Foundry and forge,	138	365	8,735	Power, water, two over-shot wheels.
		36	12	3	Hot,	Anth. coal,					Fossil ores, yielding 33 per cent.
Cumberland county.											
Carlisle Iron Works,	1	27	8.6	2	Warm,	Charcoal,	Grey forge and car wheel.	50	300	3,300	Hematite and magnetic.
Dauphin county.											
Cameron,	1	48	13.6	3	Hot,	Coal and coke,		41	169	3,797.10	Hematite, ⅓; magnetic, ¼; cinder, ¼.
Harrisburg,	1	38	11.10	3	Hot,	Anth. & coke,	Foundry,	22	240	3,500	Hematite, magnetic, and fossil.
Lochiel,	1	54	13	5	Hot,	Coal and coke,		53	325	7,393.2	Fossils and hematite.
Paxton,	2	50	14	6	Hot,	Anth. & coke,	Bessemer and forge	99	365		Magnetic and hematite.
		60	16	5	Hot,						
Swatara, (Union Deposit,)	1	50	12	4	Hot,	Coal and coke,					Put in blast December 30, 1880.
Wister,	1	45	14	5	950° F.,	¼ coke, ¾ anth.	8-10 forge,	50	346	12,813	½ Foreign and ½ native ores.
							1-10 foundry.				
							1-10 Bessemer.				
Pennsylvania Steel Company,	2	60	14	6	Hot,	Coal and coke,	Bessemer,	178	365	35,000	Virginia, Pennsylvania, New Jersey, and
		76	17.6	6	Hot,		Nos. 1, 2 and 3,			34,700	foreign ores, averaging 50 per cent.
Erie county.											
Erie,	1	49	13	7	Hot,	Coal and coke,	Foundry and forge,	30	220	5,230	Principally Lake Superior ores.

BLAST FURNACES—*Continued.*

NAME OF FURNACE OR WORKS.	Number of stacks.	Height of stacks—feet.	Diameter of bosh—feet.	Number of tuyeres.	Temperature of blast.	Kind of fuel used.	Grade of iron produced.	Number of persons employed.	Days in operation during the year.	Number of tons of iron produced.	KIND OF ORE, &C.
Fayette county.											
Dunbar,	2	78	20	7	Hot,	Coke,	Forge and foundry,	80	350	22,000	Cornwall, magnites of Virginia, and cinder.
Lemont,	1	65	15.6	7	Hot,	Coke,	Forge and foundry,	47	317	8,650	Only one in blast. Red fossil ores.
Fayette Coke and Iron Furnace Co.,	1	52	11.6	3	Hot,	Coke,	Forge and foundry,	150	335	3,740	Native ores, averaging 33 to 40 per cent.
Franklin County.											Native, Cornwall, and fossil ores and cinder. Formerly Olyphant furnace.
Falling Spring,	1	35	9	1	Cold,	Charcoal,	Car wheel and chilled rolls.	16		1,257	Started in May, 1880.
Franklin,	1	32	8.6	1	Cold,	Charcoal,	Car wheel and chilled rolls.	12	300	1,534	Forty per cent. hematite ores.
Huntingdon County.											
Rockhill,	2	65	17	5	Hot,	Anth. & coke,	Grey forge,	96	366	17,905	No. 1 furnace in blast only 129 days. Hematite and fossil ores.
Barree Iron Works,	1	30	8	2	Warm,	Charcoal,	Best Juniata,	30	250	1,310	Red hematite ores, (red short.) One furnace not in blast.
Greenwood,	2	32	9	2	Cold,	Charcoal,	Car wheel,	120	345	1,964	Red fossiliferous ores.
Lancaster County.											
Chestnut Hill Iron Works,	3	33	10.8	3	Hot,	Anthracite,	Foundry and forge,	75	365	12,000	Hematite and magnetic ores.
		47	14	6	Hot,	Anthracite.			80		
		45	16	6	Hot,	Anthracite.			365		
Chickies,	2	45	11.6	3	Hot,	Anth. & coke,	Foundry and forge,	168	365	12,348	Magnetic and brown hematite ores.
		45	13	3	Hot,	Anth. & coke.					
Cordelia,	1	37	13.6	3	Hot,	Anth. & coke,	Foundry,	28	306	4,849	Hematite, magnetic, and specular ores.
Donegal,	1	36	12	3	Hot,	Anth. & coke,	Foundry and forge,	28	360	5,333	Magnetic, red and brown hematite.
Marietta,	2	48½	12	3	Hot,	Anth. & coke,	Neutral grey.				
		35	12	3	Hot,	Anth. & coke,	Forge and foundry,			780.10	Out of blast.
Vesta,	1	41	14	3	Hot,	Anth. & coke,	Forge and foundry,	28	365	7,300	Neutral hematite and Cornwall.
Mount Hope,	1	44	9	2	Hot,	Charcoal,		25	366	3,000	Cornwall ores.
Lawrence County.											
Clara,	1	65	16	7	Hot,	Coke,	Bessemer,	36	365	15,000	Lake Superior, red specular ore and part Spanish and African ores.

Rosena and Sophia,	1	77	20	8	Hot,	Coke & coal,	Foundry and mill,	60	157	10,491	Lake Superior ores.
	1	60	16	8	Hot,	Coke & coal,					Sophia not in blast during 1880.
Hope,	1	28	8.6	1	Cold,	Charcoal,		19	160	1,650	Limestone ore (hematite.)
Little Pet,	1	40	9	3	Hot,	Coke,	Mill and foundry,	18	103	1,126	Put out of blast in April, 1880.
Neshannock Iron Company,	1	60	16	8	Hot,	Coke,	Mill and foundry,	35	225	8,825	Lake Superior and native ores.
Etna Iron Works,	2	50	12.6		Hot,	Coke,	Mill,	51		19,971	Lake Superior and native ores.
Lebanon County.											
J. & R. Melly,	1	46	13	3	Hot,	Anth. & coke,	No. 3, mill,	30	365	6,686	
Lehigh County.											
Allentown Iron Works,	5	56	14	9	Hot,	Anthracite,	A, No. 1,	190	365	43,430	⅔ hematite, and ⅓ magnetic ores.
Lehigh Iron Works,	2	54	16	6	Hot,	Anthracite,	Nos. 1 and 2,	70	366	15,083	Hematite from Lehigh county.
		60	17	6	Hot,	Anthracite,	Foundry,				Magnetic from N. J., and Port Henry, N.Y.
Thomas Iron Company,	2	60	16	6	Hot,	Anthracite,	Foundry,	60	365	20,000	Hematite and magnetic.
Macungie Iron Company,	1	56	16	6	Hot,	Anthracite,	Foundry,	31	308	7,458	N. J. magnetics, and Penn'a hematites.
Thomas Iron Works,	6	60	15	6	Hot,	Anthracite,	Foundry and mill,	290	365	99,505	Native brown hematite and Jersey magnetic.
	1	65	to	to	Hot,	Anthracite,					
	1	55	18	8	Hot,	Anthracite,					
Lycoming County.											
Atlas,	1										Not in blast in 1880.
Mercer County.											
Douglass,	2	60	15	8	Hot,	Block coal and coke,	Bes. and red short forge and foundry,	50	272	14,395	Lake Superior. No. 1, specular and hematite, Bessemer ores; one furnace not in blast 1880.
Mabel,	1	50	14	7	Hot	Coal & coke,	Nos. 1, 2, and 3,	40	234	9,360	Lake Superior.
Mt. Hickory,	2	50	14	8	Hot,	Coke and block coal,	Bessemer foundry and mill,	45	320	14,270	Barnum, Champion, Lake Superior specular, Norway and other ores.
The Sharon Furnace,	1	46	11	7	Hot,	Coal & coke,	Mill,	27	248	4,960	Lake Superior ores.
Sharpsville,	1	50	11	6	Hot,	Coal & coke,	Bessemer and R. S. mill,				Out of blast during 1880.
Shenango,	2	46	11.6	4	Hot,	Coal & coke,	Mill and foundry,	35	250	9,300	No. 2, hematite.
		46	13.6	4	Hot,	Coal & coke.					
Stewart Iron Works,	2	50	7	5	Hot,	Coal & coke,	Bessemer.	93	366	36,869	Lake Superior, Jackson specular and hematite.
		55	8	6	Hot,						
Sharon Iron Works,	2	48	14	15	Hot,	Coal & coke,	No. 1, mill,	39	310	15,596,465	No. 1 furnace in operation 152 days. Lake Superior ores.
Wheatland,	1	50	16								Not in operation since 1874.
	2	50	14								
	1	50	8								
Mifflin County.											
Matilda,	1	42	10	3	Hot,	Coke & anth.,	Nos. 1, 2, and 3,	24	130	1,067	Fossil and hematite.
Logan Iron and Steel Works,	1	36	9.4	3	Hot,	Charcoal and coke,	Forge and mill,	111	214	1,555	Brown hematite and brown fossil.
Montgomery County.											
Anvil,	1	65	16	7	Hot,	Anth. & coke	Grey forge,	66	293	14,403	Magnetics and hematites.
Edge Hill Iron Company,	1	60	16	6	Hot,	Anth. & coke,	Foundry & forge,	55	305	10,000	Hematites and magnetics.
Merion,	1	49	12	4	Hot,	Anthracite,	Forge & foundry,	68	365	13,201	Hematites and magnetics.
Elizabeth,	1	55	16	6		Anthracite,			178		
Montgomery,	1	50	14	6	Hot,	Anthracite,	Grey forge,	32	138	3,660	Magnetic and hematite.

BLAST FURNACES.—*Continued.*

NAME OF FURNACE OR WORKS.	Number of stacks.	Height of stacks—feet.	Diameter of bosh—feet.	Number of tuyeres.	Temperature of blast.	Kind of fuel used.	Grade of iron produced.	Number of persons employed.	Days in operation during the year.	Number of tons of iron produced.	REMARKS.
Montgomery County.											
Norristown,	1	55	16.6	7	Hot,	Anthracite,	Grey forge,	37	222	5,605.1120	¾ Hematite, ¼ New Jersey magnetic.
Warwick,	1		15.6		Hot,		Mill,	58	168	8,885	Sulphurous and brown hematites.
Montour County.											
Columbia,	2	39	14	4	Hot,	Anthracite,	Foundry,	65	284	7,829	Clinton fossil, hematite, and magnetic.
		50	15.6	4	Hot,	Anthracite,			150		
Danville,	2	38	14	4	Hot,	Anthracite,	No. 1 foundry,	28	354	5,519	Fossil, magnetic, and hematite.
		60	14	7	Hot,	Anthracite,					
Montour Iron and Steel Company,	3	50	14.8	7	Hot,	Anth. coal &		62	366	14,555.3	Block, red hematite, soft.
		50	15	7	Hot,	coke.	Grey forge,		280		Fossil, hard fossil, and Cornwall magnetic.
		35	14	6	Hot.						
Northampton County.											
Bethlehem Iron Company,	8	62	16	4		Anthracite &					Domestic and foreign ores being used.
		70	17.6	5		Bituminous					
		49	13	3		coal & coke.					For further particulars see "Bessemer steel."
		70	18.6	4							
		70	18.6	4						84,264	Pig and spiegel iron.
		27	7.6	3							
		65	19.6	5							
Bethlehem Iron Company, Northampton, (leased,)		65	16	4							
Glendon Iron Works,	5	50	14	4	Hot,	Anthracite,	Foundry & forge,	350	365	69,000	Magnetic and limonite ores.
		47	15	5	Hot,	Anthracite,					
		63	16	5	Hot,	Anthracite,					
		72	18	7	Hot,	Anthracite,					
		81	18	7	Hot,	Anthracite,					
Keystone,	1	65	16	6	Hot,	Anthracite,	Foundry & forge,	48	140	3,935	Hematite and magnetic ores.
Lucy,	1	60	14.8	4	Hot,	Anthracite,	Foundry,	50	325	7,800	Hematites and magnetics.
Northumberland County.											
Chulasky,	1	42	14	4	Hot,	Anthracite,	Mill,	28	365	6,742	Fossil ores.

Perry County.											
Duncannon,	1	60	15	5	Hot,	Anthracite,	. . . .	. .	. .	.	Not in blast since 1873.
Marshall,	1	60	13	6	Hot,	Anth. & coke,	Neutral foundry & grey forge.	46	229	5,200	Hematite, fossil, and Dillsburg magnetic.
Philadelphia.											
S. Robbins & Son,	1	58	14	5	Hot,	Anthracite,	Forge & foundry,	70	180	4,503	Spanish, Portugal, Lake Champlain, and Pennsylvania hematites.
Schuylkill County.											
Pioneer,	3	50	12	4	Hot,	Anthracite,	Foundry,	110	303	22,535	Spathic and magnetic.
	. .	50	13.6	6	Hot,	Anthracite,	Forge and mill,				
	. .	55	15	4	Hot,	Anthracite,					
Stanhope,	1	42	12.6	3	Hot,	Anthracite,	. . . . .	. . .	.	. . . .	Not in blast in 1880.
Jefferson,	1	33	8.2	1	Cold,	Charcoal,	No. 1 charcoal, . .	9	217	937	
Westmoreland County.											
Charlotte,	1	65	16.6	6	Hot,	Coke, . . .	Neutral gray forge,	58	300	15,919	Virginia and lake, native carbonates, Blair county, and Cornwall hematites; average yield 48 per cent.
York County.											
Aurora,	1	50	12	4	Hot,	Anth. & coke,	Foundry and mills strictly neutral,	36	305	6,357	Cornwall and York county magnetics and red hematite.
York,	1	32	9	1	Cold,	Charcoal, . .	. . . . .	. . .	. . .	. . . . .	Not in blast in 1880.

RECAPITULATION.

Number of establishments to whom blanks were sent,	176
Number of establishments from whom returns were received,	110
Number of stacks, as reported,	161
Number of persons employed,	6,344
Amount of pig iron produced, in tons of 2,000 pounds,	1,198,072.1805

ROLLING-MILLS.

NAME OF WORKS.	Number of puddling furnaces.	Number of heating furnaces.	Number of trains of rolls.	Character or size of trains	Number of nail machines.	Number of persons employed.	Number of days in operation.	PRODUCT. Number of tons of iron. a. Number of kegs of nails.	
Allegheny County.									
American Iron Works,	76	20	12		63	2,500	277	a 84,143	
Anchor Nail Works,	22	5	3	Muck, plate, and tack-plate,	101	380	..	48,000 9,000	
Keystone Rolling-Mill,	24	5	4	Muck, plate, bar and guide,	..	300	250	a 160,000 10,000	Merchant iron and nails. Bars, sheets, and plates.
McKeesport Iron Works,	8	2	5	Sheet and bar,	..	316	299	5,564	(12 knobbling fires,) black & planished sheet iron.
Pittsburgh Forge and Iron Co.,	31	6	3	20 in., 16 in., and 9 in.,	..	231	.	15,000	Bar iron, splice bar, bolts, nuts, and washers.
Pittsburgh Iron Works,	52	17	13	20 in., 18 in., 16 in., 12 in., 10 in., and 8 in.,	..	850	270	20,640	Hoop and band iron and cotton ties valued at $1,322,783.41.
Solar Iron Works,	21	6	5	18 in., 12 in., 8 in., and 7 in.,	..	300	275	9,000	Hoop and band iron.
Star Iron Works,	20	5	5	18 in., 12 in., 10 in., and 8 in.,	.	270	287	7,500	Hoop, band, and horse-shoe iron.
U. S. Iron and Tin-Plate Works,	3	2	6	20 in., bar, 20'' by 30'' sheet and cold rolls,		150	290	2,507	Stamping and smooth stove-pipe iron.
Vesuvius Iron and Nail Works,	24	13	7	21 in., 20 in., 18 in., 15 in., and 8 in.,	49	350	300	a 37,218 10,000	Bar, boiler, sheet tank and skelp iron.
Oliver Bros. & Phillips—									
Tenth Street Mills,	32	7	4	1—16 in.; 2—8 in.; 1—10 in.,	..	500	240	24,000	Merchant bar and specialties.
Lower Mills,	41	6	4	1—22 in.; 1—16 in.; 1—10 in.; 1—8 in.,	..	460	237	24,000	Merchant bar, &c.
Fifteenth Street Mills,	20	6	4	1—25 in.; 1—15 in.; 1—10 in.; 1—8 in.,	..	250	190	3,000	Plate, bar, and skelp, 5,000 tons muck.
Armstrong County.									
Kittanning Iron Company,	17	4	1	Three high 20 in ,	24	104	10	137	Muck bar.
Leechburg Rolling-Mill,	6	2	3	Sheet 42 in. and 30 in. and bar,	..	100	250	2,590.17	Sheet iron.
Beaver County.									
Beaver Falls Iron Works,	8	2	2	15 and 9 in.,	..	42	250	4,000	Refined blooms, bars, and billets.
Berks County.									
Blandon Iron Works,	11	2	2	12 in. and 8 in.,	..	85	291	4,000	Skelp, band, and hoop.
Gibralter Iron Works,	.	1	1	16 in. by 48 in.,	..	15	280	1,000	Flue and small quantity boiler plate.
Hamburg Rolling-Mill,	9	3	3	2—16 in. and 1—10 in.,	..	76	200	2,800	Muck and bar iron.
Keystone Iron Works,	6	2	1	16 in.,	..	88	240	2,990	Plate iron.

William McIlvaine & Son,	6	3	2	Puddle rolls, 25 in.; plate, 25''x81'',	..	120	235	4,150	Boiler plate, tank, pipe, and bridge iron.
Phila. and Reading Rolling-Mill,	12	10	4	3—23 in. and 1—12 in.,	..	280	298	28,481	Steel and iron rails, splice bars, etc.
Pine Iron Works,		2	1	20 in. by 72 in.,	..	45	280	2,579.10	Plate iron.
Reading Iron Works,	11	4	3	8 in., 15 in., and 18 in.,	26	235	289	*a* 31,857	
								6,902	Skelp, bar, and nails.
Blair County.									
Juniata Rolling-Mill,	17	..		Muck bar train,	..	111	288	6,723.10	Muck bar.
Hollidaysburg Iron & Nail Works,	8	3	4		18	139	235	*a* 20,968	
								3,000	Bar and angle iron, small T rails, and nails.
Bucks County.									
Bristol Rolling-Mill,	..	2	3	1—12 in.; 1—8 in.; 1 continuous train,	..	70	300	3,000	Hoop, band, and scroll iron.
Centre County.									
Howard Iron Works,	4	2	4	8 in., 12 in., 16 in., and 6 in.,	..	..	..	.....	Not in operation in 1880.
Chester County.									
Laurel Rolling-Mill,	..	3	3	20 in. by 66 in., 25 in. by 65 in., and 1 three high,	..	36	250	2,500	Flue iron.
Lukens Rolling-Mill,	6	4	2	Plate, 84 in. by 25 in., and grooved blooming 66 in.,	..	142	277	4,900	Boiler plate.
Parkesburg Iron Works,	8	3	1	1—22 in train and one hammer,		110		3,557.10	Boiler and tube iron, five forge fires.
Thorndale Iron Works,	4	2	2	One muck and one plate train,	..	90	270	3,247	Boiler and plate iron.
Valley Iron Works,	8	4	4	55 in. to 110 in. in length,	..	150	300	5,785	Plate iron.
Columbia County.									
Berwick Rolling-Mill,	11	2	2	16 in. and 9 in.,	..	84	264	5,704	Merchant bar and rolled axles.
Cumberland County.									
Harrisburg Nail Works,	18	3	3	1—14 in. and 1—16 in., muck, 14½ in. plate,	75	370	244	*a* 138,742	
								6,939	Product of iron is made into nails.
Dauphin County.									
Lochiel Rolling-Mills,	10	3	3	1—18 in.; 1—16 in.; and 1—9 in,	..	250	285	4,942	Muck bar.
								3,895	Bar iron.
Delaware County.									
Chester Rolling-Mill,	22	5	7	2—30 in.; 2—26 in.; 1 universal, 22 in. and 2 puddle trains,		265	290	9,562	Plate iron.
Lackawanna County.									
Green Ridge Iron Works,	..	1	2	10 in. and 14 in.,	..	20	251	900	Merchant bar.
Lancaster County.									
Lancaster Rolling-Mill,	7	1	2	18 in. muck and 9 in. guide,		75	...	4,000	Merchant bar, railroad supplies and forgings.
Penn Iron Works,	8	5	4	16 in., 21 in., 9 in., and 8 in.,	3	405	296	8,267	17,500 kegs, spikes, bolts, and nuts.
Susquehanna Rolling-Mill,	12	3	2	16 in. and 9 in.,	..	111	300	6,400	Bar iron.
Shawnee Rolling-Mill,	13	..	1	Muck-mill,	..	150	..	.....	Muck Bar started October 4, 1880.
Lawrence County.									
Lawrence Rolling-Mill,	27	7	5	18 in., 16 in., 8 in., and 20 in.,	55	258	...	*a* 11,063	
								7,514	Bars, rods, sheets, plates, and nails.
Etna Iron Works,	25	5	4	18 in. muck, 18 in. nail, 16 in. and 8 in.,	55	325	300	*a* 91,521	
								4,122	Merchant bar and nails.

ROLLING-MILLS—*Continued.*

NAME OF WORKS.	Number of puddling furnaces.	Number of heating furnaces.	Number of trains of rolls.	Character or Size of Trains.	Number of nail machines.	Number of persons employed.	Number of days in operation.	PRODUCT. Number of tons of iron. aNumber of kegs of nails.	
Lebanon County.									
Lebanon Rolling-Mill,	8	6	2	22 in. and 24 in.,	..	160	275	5,000	Boiler plate, skelps, and tank.
Van de Sande & Capp,	3	1	3	8 in., 14 in., and 20 in.,	..	33	300	1,500	Bar and guide iron.
Lehigh County.									
Catasauqua Manufacturing Co.,	28	8	5	2—21 in.; 1—18 in.; 1—15 in.; and 1—10 in.,	..	518	...	20,000	Plates and bars.
Mercer County.									
Westerman Iron Company,	29	7	6	2—8 in.; 1—16 in.; 2—18 in.; and 1—20 in.,	46	480	296	3,129.615	Nails, boat and railroad spikes.
								15,048.500	Bar, band, hoop, and sheet-iron.
Stewart Muck-Mill,	15	1	2	18 in.,	..	25	102	2,094	Muck bar, blooms, and re-hammered billets.
Wheatland,	8	12	3	24 in.,	..	...	...	.....	Iron rails. Not in operation.
Mifflin County.									
Logan Works,	8	3	3	1—12 in.; 1—8 in.; and 1—16 in. muck,	..	83	290	3,199	Merchant bar, refined, and charcoal.
Montgomery County.									
Glasgow Iron Company,	12	3	2	Muck train. Plate-mill. 30 in. x96 in.,	..	120	286	6,394.1314	Muck bars.
								6,682.810	Plate iron.
Pottstown Iron Company,	21	10	6	2—25 in.; 2—24 in.; 1—22 in.; and 1—18 in.,	55	801	...	*a* 213,335	
								8,681	Plates and nails.
Norristown Iron Works,	10	3	3	1—10 in. and 2—18 in.,	..	80	198	$180,308 61	Skelp iron.
Pottsgrove Iron Works,	10	3	2	Muck train, 22 in.; plate, 18 in.,	..	160	260	5,460	Plate iron.
Schuylkill Iron Works,	15	18	14	18 in. to 24 in.,	..	400	250	9,000	Sheet and plate.
Montour County.									
C. Iron and Steel Works,	6	7	2	18 in.,	..	130	266	11,733	T and street railway bars.
Danville Rail-Mill,	..	..	..		..	...	...	.....	Removed to Chester, Delaware county.
Montour Iron and Steel Company,	53	17	4	3—20 in. and 1—16 in.,	..	662	301	27,904	New railroad iron.
Northampton County.									
Easton Sheet Iron Works,	2	1	1	22 in.,	..	42	282	1,231.238	Sheet-iron.
Lehigh Works,	..	4	6	3—9 in. 3 setts bloom rolls,	..	20	250	.....	Wire rod.

Perry County.								
Duncannon Iron Works, ...	16	6	4	1—20 in.; 1—16 in.; 1—8 in ; and 1—18 in., .	54	294	300	*a* 96,413
								4,944 Bar iron.
								4,405.10 Nail plate.
Philadelphia County.								
Gray's Ferry Iron Works, . . .	3	3	2	1—24 in. and 1—18 in., ...		92	274	2,800 Plate iron.
Philadelphia Iron and Steel Co., .	3	7	5	2—18 in.; 1—12 in.; 2—8 in,, ...		125	280	8,000 Bar iron and special shapes.
Philadelphia Rolling-Mill, ...	16	6	4	17 in. muck. 22 in. plate and 9 in., ...		225	296	6,684.10 Bars, bands, and plate.
Schuylkill County.								
Little Schuylkill Rail-Mill, ...	3	2	3	18 in. muck. 16 in. and 10 in., ...		70	200	1,880 Bar iron.
Port Carbon Rail-Mill, ...	16		1	15 in. muck, ...		71	300	4,392.10 Puddle iron, for Pottsville Iron and Steel Co.
Pottsville Rolling-Mill, ...	23	12	3	18 in., 19 in., and 23 in., ...		625	311	7,100 Beam, channel, and angle iron.
								15,411 Rails.
Greenwood Rail-Mill, ...	5	2	2	1—16 in. and 1—8½ in., ...		110	140	1,236 Bar and hoop iron.

RECAPITULATION.

Number of establishments to whom blanks were sent, ...	135
Total number of establishments returned, ...	68
Total number of puddling furnaces, ...	989
Total number of heating furnaces, ...	330
Number of trains of rolls, ...	237
Number of nail machines, ...	624
Total number of persons employed, ...	16,279
Total production, net tons, of iron, ...	500,746
Total production of nails, in kegs, ...	909,260

BLOOMERIES.

NAME OF OPERATOR.	Number of refineries.	Number of fires.	Number of hammers.	Number of persons employed.	Number of days in operation.	Number of tons of blooms produced.	REMARKS.
Berks County.							
W. & B. F. Taylor,	1	5	2	15	..	768	Water power.
Thomas G. Williams,	1	2	1	4	12	11	Mt. Airy Forge.
Blair County.							
John Royer,	2	4	1	32	175	345	
Samuel Isett,	1	4	1	..	..		Not in operation since 1877.
Anderson & Co.,	..	..	1	17	182	213	Make blooms direct from ore with rotator. Use gas for fuel.
Centre County.							
Bernard Lauth,	1	10	1	31	224	1,390	
Chester County.							
French Creek Forge,	1	4	1	11	200	497	Thos. Wanner, attorney for Esther Kauffman.
Clinton County.							
S. L. M. Barlow & S. Day,	..	8	1	..	..	..	Not in operation.
Columbia County.							
C. E. Pennock & Co.,	1	3	2	23	125	250	
Cumberland County.							
C. W. Ahl & Son,	1	5	1	23	300	2,000	
Mumma & Boyer,	1	3	1	18	150	180	
Dauphin County.							
Killinger, Kauffman & Co.,	1	5	1	50	220	1,200	
Huntingdon County.							
Mumper & Co.,	1	4	1	28	250	720	
Lancaster County.							
Edward S. Davies,	1	4	1	10	200	399	
Davies & Potts,	1	4	1	10	140	285	
Lebanon County.							
Samuel K. Wanner,	1	5	1	14	250	600	Water power.
J. & R. Melly,	1	5	1	28	200	1,336	
Perry County.							
William McIlvaine & Sons,	1	4	1	18	250	739	
Seidel Brothers,	1	7	1	33	340	1,970	

RECAPITULATION.

Establishments,	19	Hammers,	21
Refineries,	18	Employees,	365
Fires,	86	Product in tons,	12,993

BESSEMER STEEL WORKS.

Of the total number of Bessemer works in the United States, five are located in Pennsylvania, containing ten converters, with six additional converters now in course of erection. Another large works is being built, which will be completed during the year. Of the open-hearth steel furnaces there are twelve completed and six building, which will make the steel manufacturing capacity of the State about one half that of the entire country.

Returns were received from Cambria Iron Company, Pennsylvania Steel Works, and Bethlehem Iron Company.

EDGAR THOMSON STEEL WORKS.—Two seven-ton converters. Production for the year 1880, 130,694$\frac{2110}{2240}$ tons of ingots, 106,722$\frac{2060}{2240}$ tons of rails, and 3,421$\frac{2011}{2240}$ tons of merchant steel. Total finished product, 110,144$\frac{1831}{2240}$ tons.

CAMBRIA IRON AND STEEL WORKS.—*Iron Department:* Forty-two double puddling furnaces; twenty-eight heating furnaces; five sets 21 inch rail-mill rolls, two sets 18 inch, three sets 12 inch, three sets 16 inch, merchant mill, and six sets 22 inch puddle rolls. *Bessemer Steel Department:* Two 6½ tons converters; 4 cupalos; 2 spiegel furnaces; 2 open-hearth furnaces; one 40-inch blooming-mill. Production for the year 1880, Bessemer steel ingots, 122,115 gross tons; open-hearth steel, 6,150 gross tons; steel rails, 80,600 gross tons; steel in other forms, 20,000 gross tons. In operation during the year, 275 days. Total number of persons employed in all departments, 4,200.

PENNSYLVANIA STEEL COMPANY.—Two 5 ton converters, (adding 3 more converters;) three cupalos; three spiegel cupalos; and two open-hearth furnaces. One 23 inch and one 24 inch trains of rolls. Production for the year 1880, 106,230 tons Bessemer steel, and 6,585 tons open-hearth steel. Total, 112,815 tons, of which 85,635 tons were converted into rails, and 27,130 tons into billets, slabs, and forgings.

LACKAWANNA IRON AND STEEL WORKS.—*Iron Department:* One hundred and thirteen single puddling furnaces, 35 heating furnaces, and 12 trains of rolls, (one 31, one 23¼, two 23, two 22, two 20, three 18, and one 8-inch,) and 1 hammer. Steam and water power. Annual capacity, 150,000 net tons of steel and iron rails, and 13,500 tons of merchant bar iron and car axles. *Bessemer Steel Department:* Two 5-gross-ton converters, (one more converter in course of construction,) four cupalos, and four spiegel furnaces. Annual capacity, 135,000 net tons steel ingots. (Annual capacity of new converter, 45,000 net tons of ingots.)

PITTSBURGH BESSEMER STEEL COMPANY, LIMITED.—Building two 4-ton converters.

THE BETHLEHEM IRON COMPANY.

PLANT: EIGHT BLAST FURNACES, one of which is leased; engine-house, 230 feet long, 60 feet wide; two low-pressure engines, 54 inches diameter by 80 inches stroke; one compound blowing-engine, 30 inches and 54 inches diameter by 80 inches stroke; one upright compound pumping-engine, 16 inches and 30 inches diameter by 34 inches stroke; two horizontal compound pumping-engines, 16 inches and 30 inches diameter by 50 inches stroke; four double-acting pumps, 16 inches by 5 inches, general supply; two double-acting 300 pound pressure pumps, 7½ inches diameter by 17 inches stroke; and pumps, machinery, and appurtenances for supplying water to the town of South Bethlehem.

MILL No. 1.—Built in 1863. One single, and thirteen double puddling furnaces; nine heating furnaces; one 21-inch train of rolls, with 4 sets housings, for iron rails, shapes, and merchant iron; one 21-inch train for puddled iron, and one "Universal" hoop-mill, one hammer, squeezers, saws, shears, presses, &c. Product—Railroad iron, cotton ties, hoops, &c.

MILL No. 2.—Four 7 gross tons Bessemer Steel Converters, two of which, and appurtenances relating thereto, are not quite completed. Eight iron, and two spiegel cupolas, three steam-hammers, nine Siemen's heating furnaces, two 32-inch blooming trains of rolls; two 24-inch trains, with 4 sets housings each for steel rails, heavy shapes, and merchant steel; one 15-inch train, with three sets housings for merchant steel and small shapes, shears, saws, drills, punches, hydraulic cranes, hoists, &c.; twenty-nine gas producers, three nests of boilers.

IN COURSE OF ERECTION.—Siemens-Pernot open-hearth steel plant, consisting of two 15 ton furnaces, one Siemens heating furnace, two hydraulic cranes, hoists, &c.

MACHINE SHOP, foundry, blacksmith shop, and carpenter shop, connected with the works.

DESCRIPTION OF FURNACES:

No. 1,	62	ft.	height of stack,	16	ft.	diameter of bosh,	4 tuyeres
No. 2,	70	"		17½	"		5 "
No. 3,	49	"		13	"		3 "
No. 4,	70	"		18½	"		4 "
No. 5,	70	"		18½	"		4 "
No. 6,	27	"		7½	"		3 "
No. 7,	65	"		19½	"		5 "
Northampton, (leased,)	65	"		16	"		4 "

Magnetic and hematite, domestic and foreign ores are used in these furnaces. A large part of the ore, and all the limestone used, is mined by the company in different parts of Pennsylvania, New Jersey, and New York. The fuel is anthracite and bituminous coal, and coke. Average quantity being 250,000 net tons per year.

TOTAL NUMBER OF HANDS employed during the year 1880, every department being in full operation for the full term of twelve months, was 2,800.

PAID FOR WAGES at works and mines, $1,276,716 39.

AVERAGE WAGES PAID, as follows:

Labor, ordinary,			$1 15	per day.
Labor, other,	$1 25	to	1 50	"
Engineers,	1 38	"	2 20	"
Firemen and water tenders,	1 32	"	1 50	"
Gas-producer men,	1 32	"	1 64	"
Puddlers,	3 50	"	4 25	"
Helpers,	1 65	"	1 98	"
Hands at rolls in Mill No. 1,	55	"	5 00	"
Hands in Mill No. 2,	1 06	"	6 60	"
Boys,	33	"	90	"
Teamsters,	1 20	"	1 75	"
Foundry hands,	1 15	"	2 50	"
Carpenters,	1 30	"	3 00	"
Blacksmiths,	1 50	"	3 60	"
Helpers,	1 25	"	1 40	"
Machine shop,	75	"	2 75	"
Bricklayers and stonemasons,	1 40	"	2 25	"
Brakemen and train hands,	1 70	"	2 20	"
Furnacemen,	1 15	"	2 42	"
Foremen, superintendents of departments, and others,	1 75	"	7 00	"

PRODUCTS, IN TONS OF 2,000 POUNDS:

Pig and spiegel iron,	84,264	tons.
Puddled bar,	12,273	"
Merchant iron,	1,214	"
Merchant steel,	18,274	"
Steel rails,	87,926	"
Total,	203,951	"

RECAPITULATION—PRODUCT.

NAME OF COMPANY.	Bessemer ingots, gross tons.	Open-hearth ingots, gross tons.	Total, gross tons.	Rail, gross tons.	Merchant steel, gross tons.	Total, gross tons.
Edgar Thomson,	130,694.2110		130,694.2110	106,722.2060	3,421.2011	110,144.1831
Cambria Iron Company,	122,115	6,150	128,265	80,600	20,000	100,600
Pennsylvania,	106,230	6,585	112,815	85,635	27,130	112,765
Bethlehem Iron Company,				78,514.640	16,316.160	94,830.800
Total,				351,472.460	66,867.2171	418,340.391

CRUICIBLE AND OTHER STEEL WORKS.

Blanks were sent to 25 steel manufacturing establishments, 11 of which have been filled out and returned, making the following exhibit:

NELLIS AGRICULTURAL WORKS, ALLEGHENY CITY.—Manufacturer all kinds of plow steels and irons, (contains 7 forges, 7 heating furnaces, 4 four-pot smelting furnaces, 6 hammers. 2 upright presses, 1 drop press, and other minor machines.) Employ an average of 175 persons. In operation during the year, about 278 days. Amount of product during the year 2,000 tons.

LA BELLE STEEL WORKS, ALLEGHENY CITY.—Manufacture merchant steels, springs, axles, (iron,) rake teeth, etc. Contain 2 puddling furnaces, 10 heating furnaces, 1 Siemen's furnace, 36 pots; 24 steel melting furnaces, 48 pots; 8 hammers, 1, 20 inch; 1, 16 inch; 10-inch and 9-inch trains of rolls. Employ 330 persons. In operation during the year, 256 days, (double turn.) Amount of product, $5{,}018\frac{152}{2000}$.

PITTSBURGH STEEL CASTING COMPANY, PITTSBURGH.—Have 2 Siemen's furnaces, number of pots, 48. Four steel melting furnaces, number of pots, 12, and 2 hammers. Average number employed, 80. In operation during the year, 300 days. Amount of product, 1,868,400 pounds or $934\frac{400}{2000}$ tons.

PITTSBURGH STEEL WORKS, PITTSBURGH.—Five Siemen's furnaces, 120 pots; 9 hammers; one 8 inch, one 10 inch, two 20 inch, and two 16-inch trains of rolls. 262 persons employed. In operation 300 days during the year. Amount of product, 12,000 tons.

THE SPANG STEEL AND IRON COMPANY, LIMITED, ETNA, ALLEGHENY COUNTY.—Three heating furnaces; one Siemen's heating furnace; two steel-melting, open-hearth furnaces; one 30 inch blooming train, one 18 inch bar train, and one 30 inch universal train. In course of construction, expect to be completed about May 1, 1881.

FAIRMOUNT STEEL WORKS, PHILADELPHIA, ALEX. FOSTER & CO.—Manufacture best crucible cast and machinery steel, suitable for tools of every description; also all kinds of steel forgings. Three heating furnaces, four steel-melting furnaces, sixteen pots, and three hammers. Employ 20 persons. In operation 306 days during the year. Amount of product, 164 tons.

KEYSTONE STEEL WORKS, HENRY DISSTON & SON, PHILADELPHIA.—Ten heating furnaces, 66 steel melting furnaces, 132 pots per heat; one 2 ton hammer, one 24 inch and two 16 inch sheet mills. 90 persons employed. Main works in operation 295 days, and branch works 53 days during the year. Amount of product, 2,362 net tons.

MIDVALE STEEL WORKS, NICETOWN, PHILADELPHIA.—Contains 5 Siemen's furnaces for pots, for 6 pots each; total, 30 pots; 12 steel-melting furnaces

for 4 pots each, and 2 for 2 pots each; total, 52 pots; 2 Siemen's-Martin open-hearth furnaces, one 12 ton, one 30 ton converting furnace, one gas pot muffle, one kiln for drying, and two annealing furnaces, seven hammers, one 23 inch and one 12 inch train of rolls. 427 persons employed full time. Amount of product, 16,348,989 pounds, or $8,174\frac{989}{2000}$ tons.

OXFORD IRON AND STEEL WORKS, WILLIAM & HARVEY ROWLAND, FRANKFORD, PHILADELPHIA.—4 heating furnaces, 24 steel-melting of 2 pots each; total, 48 pots; 4 steel-converting furnaces, 2 hammers, one 12 inch, one 14 inch and one 16-inch train of rolls. Number of persons employed, 150. In operation about 300 days during the year. Value of product, $386,331 41. A considerable amount of Siemen's-Martin and Bessemer steel is purchased and worked up in the product.

PHILADELPHIA STEEL FORGE, ADAM TINDEL, FRANKFORD, PHILADELPHIA.—8 steel-melting furnaces, 16 pots, 3 hammers. Employ 12 persons. 250 days in operation during the year. Amount of product, 280 net tons.

GAUTIER STEEL COMPANY, LIMITED, JOHNSTOWN, CAMBRIA COUNTY.—11 heating-furnaces, two 20 inch, two 12 inch, and two 9 inch trains of rolls. Number of persons employed, 300. In operation during the year, 300 days. Amount of product, 15,000 tons.

RECAPITULATION.

Number of establishments,	11
Number of persons employed,	1,846
Number of puddling furnaces,	2
Number of Siemens' furnaces,	13
Number of pots,	134
Number of steel melting furnaces,	144
Number of pots,	324
Number of Siemens-Martins' open-hearth furnaces,	4
Number of heating furnaces,	33
Number of hammers,	35
Number of trains of rolls,	27
Amount of product,	$45,932\frac{1541}{2000}$ tons.
Value of product, (not specified by weight,)	$\$386,331\frac{41}{100}$

The following is the preliminary report on the iron and steel industries of the United States, prepared by James M. Swank, special agent to collect the statistics of iron and steel for the tenth census:

"The branches of the iron and steel industries of the United States which were committed to my care, in accordance with the provisions of the act of Congress authorizing the tenth census, embrace (1) blast furnaces and their products, (2) rolling-mills and their products, (3) steel works and their products, (4) and forges and blomaries and their products. The products of the blast furnaces embrace pig iron and a few furnace castings; the products of the rolling-mills embrace all rolled iron and such other

finished iron articles as a few of the mills make a specialty of producing; the products of the steel works embrace steel of every description in its crude state, and finished steel in various forms; the products of the forges embrace blooms made from pig and scrap iron; and the products of the blomaries embrace blooms and hammered bar iron made directly from the ore. In giving these products the net ton of 2,000 pounds will be invariably used.

NUMBER AND CAPACITY OF THE IRON AND STEEL WORKS OF THE UNITED STATES.

The following exhibit shows the number and capacity of the blast furnaces, rolling-mills, steel works, forges, and blomaries in the United States at the close of the census year, May 31, 1880:

Blast furnace establishments,	490
Completed blast furnaces,	681
Rolling-mill establishments,	324
Single puddling furnaces, (each double furnace counting as two single furnaces,)	4,319
Rotary puddling furnaces, (Sellers,)	1
Danks' puddling furnaces,	19
Hammers in iron rolling-mills,	239
Heating furnaces,	2,105
Trains of rolls in iron rolling-mills,	1,206
Nail machines,	3,775
Steel works,	73
Bessemer steel converters,	24
Open-hearth steel furnaces,	37
Pot-holes for crucible steel,	2,691
Trains of rolls in steel works,	136
Hammers in steel works,	219
Forges and blomaries,	118
Forge and blomary fires,	495
Siemen's rotator,	1
Hammers in forges and blomaries,	141
Daily capacity of blast furnaces, in net tons,	19,248
Daily capacity of rolling-mills, in net tons,	16,430
Daily capacity of Bessemer steel converters, in net tons,	4,467
Daily capacity of open-hearth steel furnaces, in net tons,	827
Daily capacity of crucible steel works, in net tons,	445
Daily capacity of forges and blomaries, in net tons,	520

The whole number of establishments in 1880 was 1,005. In 1870 it was 808. The percentage of increase in the ten years was 24.38. The size and capacity of the establishments were, however, much greater in 1880 than in 1870. As the capacity of blast furnaces only was given in 1870, no complete data are available for a comparison of the capacity of all the works in the two periods. The daily capacity of the blast-furnaces in 1870 was

8,357 tons, and in 1880 it was 19,248 tons, an increase of 130.32 per cent. A comparison of the number of the various works in 1870 and 1880 is given below:

	1870.	*1880.*
Blast-furnace establishments,	386	490
Blast-furnaces,	574	681
Rolling-mill establishments,	310	324
Steel-works,	30	73
Forges and bloomaries,	82	118

CAPITAL INVESTED IN THE IRON AND STEEL WORKS OF THE UNITED STATES.

The whole amount of capital invested in the iron and steel industries of the United States in 1880 was $230,971,884, in 1870 it was $121,772,074; increase, $109,199,810, or 89.68 per cent.

PRODUCTION OF THE IRON AND STEEL WORKS OF THE UNITED STATES.

The total production of the iron and steel works of the United States in the census year 1880 was 7,265,140 tons, in 1870 it was 3,655,215 tons; increase, 3,609,925 tons, or 98.76 per cent. The following table shows the production of each branch of our iron and steel industries in 1870 and 1880, with the percentage of increase or decrease in the latter year:

IRON AND STEEL PRODUCTS.	Census year 1870. Net tons.	Census year 1880. Net tons.	Percentage of increase in 1880.	Percentage of decrease in 1880.
Pig-iron and castings from furnace,	2,052,821	3,781,021	84	
All products of iron rolling-mills,	1,441,829	2,353,248	63	
Bessemer steel finished products,	19,403	889,896	4,486	
Open-hearth steel finished products,	. .	93,143		
Crucible steel finished products,	28,069	70,319	151	
Blister and other steel,	2,285	4,956	117	
Products of forges and blomaries,	110,808	72,557		35
Total,	3,655,215	7,265,140	99	35

Of the pig-iron and furnace castings produced in the census year 1880, there were produced with cold-blast charcoal, 79,613 tons; with hot-blast charcoal, 355,405 tons; with anthracite, 1,112,735 tons; with bituminous coal and coke, 1,515,107 tons; and with mixed anthracite and coke, 713,932 tons. The furnace castings amounted to 4,229 tons. The total production was 3,781,021 tons, of which 12,875 tons were spiegeleisen.

In the following table is presented a comparative statement of iron rolling-mill products in the census years 1870 and 1880:

KINDS OF IRON.	1870. Net tons.	1880. Net tons.
Bar-iron,	488,834	663,211
Rod-iron,	26,087	145,626
All kinds of plate-iron,	284,702	437,139
Sheet-iron,	74,753	94,992
Iron rails,	531,605	466,917
Skelp-iron,	2,217	128,321
Muck-bar made for sale to other works,	33,631	64,469
Other products,	.....	352,573
Total,	1,441,829	2,353,248

The item of muck-bar is an unavoidable duplication, as it undoubtedly re-appears as finished iron to be counted a second time. Further details of the rolling-mill products in the census year 1870 than have been given above cannot be ascertained.

The 352,573 tons of "other products" in the column for 1880, include 96,810 tons of structural iron; 2,630 tons of rolled axles; 96,843 tons of hoop-iron; 48,345 tons of fish plates, and miscellaneous forms of rolled iron; 82,358 tons of railroad spikes, wire, horse shoes, rivets, &c., made in rolling-mills that rolled the bar and rod iron of which they were manufactured, but which iron is not duplicated in this statement; 21,884 tons of hammered axles, and 3,703 tons of forgings.

In the Bessemer and open-hearth steel-works of the country, the following finished products were produced in the census year 1880:

FINISHED PRODUCTS.	Bessemer steel.	Open hearth steel.
	Net tons.	*Net tons.*
Rails,	741,475	9,105
Bars,	76,710	43,296
Rods,	49,064	1,134
Shapes,	557	80
Sheets,	.....	1,700
Plates,	1,475	11,034
Other forms,	20,615	26,794
Total,	889,896	93,143

The Bessemer and open-hearth steel-works in the census year 1880, produced 985,208 tons of Bessemer steel ingots, and 84,302 tons of open-hearth steel ingots.

GEOGRAPHICAL DISTRIBUTION OF THE IRON AND STEEL INDUSTRIES OF THE UNITED STATES.

The whole territory of the United States may be regarded as comprising four grand divisions—the Eastern States, the Southern States, the Western States and Territories, and the Pacific States and Territories. Assum-

ing that the Eastern States comprise all of the States lying north of Delaware and east of Ohio, that the Southern States comprise all of the late slaveholding States except Missouri, and that the other divisions require no explanations, we present the following comparative statement of the development of the iron and steel industries in each of the grand divisions in the census year 1880:

GRAND DIVISIONS.	Number of establishments.	Capital invested.	Hands employed.	Wages paid.	Net tons produced.	Value of all products.
Eastern States,	556	$149,507,461	82,842	$34,361,660	4,671,808	$192,696,010
Southern States,	218	29,145,840	20,595	6,261,344	649,153	25,353,251
Western States and Territories,	224	50,755,990	36,683	14,542,587	1,912,689	76,933,686
Pacific States and Territories,	7	1,562,603	878	311,194	31,490	1,574,738
Total United States,	1,005	$230,971,884	140,978	$55,476,785	7,265,140	$296,557,685

In 1870, there were twenty-five States engaged in the manufacture of iron and steel. Of these, South Carolina does not appear in the statistics for 1880. Its total production in 1870, did not aggregate 500 tons. The iron industry in this State has been practically abandoned. Since 1870, three States have, for the first time, engaged in the manufacture of iron, namely: Colorado, Kansas, and Nebraska; also two Territories, namely: Utah and Wyoming. Utah did not, however, make any iron in 1880. It made a small quantity in each of the years 1874, 1875 and 1876, and it will make a larger quantity in the near future. California and Washington Territory have made arrangements since the close of the census year 1880, to manufacture iron. New Hampshire made iron many years ago, but it does not appear in the statistics for 1870—it re-appears in the tables for 1880. Oregon and Texas each built a blast furnace in the decade preceding the census year 1870, but they did not make any iron in that year. They appear, however, in the statistics of production for 1880. The District of Columbia once had a blast furnace in operation, but in 1870 it had no iron industry whatever. In 1880, the United States Government owned and operated a small rolling-mill at the Washington navy-yard. Minnesota appears in 1880, for the first time among iron manufacturing States, but its statistics relate only to the preparations that have been made to embark in the business. Thirty States, the District of Columbia, and Wyoming Territory actually made iron in 1880.

COMPARATIVE PRODUCTION OF ALL THE STATES IN 1870 AND 1880.

Twelve States made over 100,000 tons each in 1880. Pennsylvania, which for more than a hundred years has been the leading iron producing State in the Union, made in 1870 a fraction over fifty per cent. of the total product, and in 1880 it made a fraction over forty-nine per cent. At both periods its prominence in the production of iron and steel wasvirtually the

same. From 1870 to 1880 it increased its production ninety-seven per cent., or from 1,836,808 tons to 3,616,668 tons, while the whole country increased its production ninety-nine per cent., or from 3,655,215 tons to 7,265,140 tons. Ohio was the next State in prominence in 1870, and it held the same rank in 1880. In the former year it produced 449,768 tons, and in 1880 it produced 930,141 tons, an increase of one hundred and seven per cent. The third State in prominence in 1870 was New York, and it maintained this rank in 1880, but its growth fell far below that of its two sister States above mentioned. In 1870 it produced 448,257 tons, and in 1880 it produced 598,300 tons, an increase of thirty-three per cent. New Jersey was fourth in rank in 1870, producing 115,262 tons, but it was fifth in 1880, although in that year it produced 243,860 tons, an increase of one hundred and twelve per cent. The fourth place in 1880 was taken by Illinois, which produced in 1870 only 25,761 tons, while in 1880 it produced 417,967 tons, an increase of one thousand five hundred and twenty-two per cent. Maryland ranked fifth in 1870, producing 95,424 tons in that year, while in 1880 it produced only 110,934 tons, an increase of sixteen per cent., causing it to drop to the twelfth place. The sixth State in rank in 1870 was Missouri, with a production of 94,890 tons, which was increased to 125,758 tons in 1880, or thirty-three per cent., giving it the tenth place in that year. Michigan increased its production in the ten years from 86,679 tons to 142,716 tons, or sixty-five per cent., taking the eighth place in rank in 1880. Wisconsin increased its production from 42,234 tons to 178,935 tons, or three hundred and twenty-four per cent., giving it the sixth place in 1880. Indiana produced 64,148 tons in 1870 and 96,117 tons in 1880, an increase of fifty per cent. Of the New England States Massachusetts shows the greatest growth in the ten years, increasing from 86,146 tons in 1870 to 141,321 tons in 1880, or sixty-four per cent., placing it ninth in rank. Astonishing progress was made in the ten years in several Southern States. West Virginia increased its production from 72,337 tons to 147,487 tons, or one hundred and four per cent., giving it the seventh place in 1880. Alabama increased from 7,060 tons to 62,986 tons, or seven hundred and ninety-two per cent. Georgia increased from 9,634 tons to 35,152 tons, or two hundred and sixty-five per cent. Tennessee increased from 34,305 tons to 77,100 tons, or one hundred and twenty-five per cent. Kentucky increased from 86,732 tons to 123,751 tons, or forty-three per cent., placing it eleventh in rank in 1880. Delaware increased from 8,307 tons to 33,918 tons, or three hundred and eight per cent. Virginia increased from 37,836 tons to 55,722 tons, or forty-seven per cent. All the States which made iron or steel in 1870 increased their production in 1880, except Maine, North Carolina, and South Carolina.

The relative rank in production of all the States in 1870 and 1880, is given in the following table:

STATES.	Production 1880.	Rank.	STATES.	Production 1870.	Rank.
Pennsylvania,	3,616,668	1	Pennsylvania,	1,836,808	1
Ohio,	930,141	2	Ohio,	449,768	2
New York,	598,300	3	New York,	448,257	3
Illinois,	417,967	4	New Jersey,	115,262	4
New Jersey,	243,860	5	Maryland,	95,424	5
Wisconsin,	178,935	6	Missouri,	94,890	6
West Virginia,	147,487	7	Kentucky,	86,732	7
Michigan,	142,716	8	Michigan,	86,679	8
Massachusetts,	141,321	9	Massachusetts,	86,146	9
Missouri,	125,758	10	West Virginia,	72,337	10
Kentucky,	123,751	11	Indiana,	64,148	11
Maryland,	110,934	12	Wisconsin,	42,234	12
Indiana,	96,117	13	Virginia,	37,836	13
Tennessee,	77,100	14	Tennessee,	34,305	14
Alabama,	62,986	15	Illinois,	25,761	15
Virginia,	55,722	16	Connecticut,	25,305	16
Connecticut,	38,061	17	Maine,	17,138	17
Georgia,	35,152	18	Georgia,	9,634	18
Delaware,	33,918	19	Delaware,	8,307	19
Kansas,	19,055	20	Alabama,	7,060	20
California,	14,000	21	Rhode Island,	4,415	21
Maine,	10,866	22	California,	3,000	22
Territory of Wyoming,	9,790	23	North Carolina,	1,801	23
Rhode Island,	8,134	24	Vermont,	1,525	24
New Hampshire,	7,978	25	South Carolina,	443	25
Vermont,	6,620	26	Kansas.		
Colorado,	4,500	27	Territory of Wyoming.		
Oregon,	3,200	28	New Hampshire.		
Nebraska,	2,000	29	Colorado.		
Texas,	1,400	30	Oregon.		
North Carolina,	439	31	Nebraska.		
District of Columbia,	264	32	Texas.		
South Carolina.			District of Columbia.		

CENTERS OF IRON AND STEEL PRODUCTION IN THE UNITED STATES IN 1880.

In the following table is presented a view of the principal "centers" of production of the iron and steel industries of the United States in the census year 1880. These "centers" are divided into two classes—the first comprising all counties which produced over 100,000 net tons of pig iron and finished products, and the second comprising all counties which produced over 60,000 and less than 100,000 tons. In the first class are fifteen counties, and in the second class seventeen counties. Six States are represented in the first class, and eight States in the second class.

Counties of the first class, producing over 100,000 tons of pig iron, rolled iron, steel, and blooms.

COUNTIES.	Net tons.
1. Allegheny county, Pa.,	848,146
2. Lehigh county, Pa.,	324,875
3. Northampton county, Pa.,	322,882
4. Cambria county, Pa.,	260,140
5. Cook county, Ill.,	248,479
6. Dauphin county, Pa.,	223,676
7. Mahoning county, O.,	219,957
8. Berks county, Pa.,	213,580
9. Cuyahoga county, O.,	210,354
10. Mercer county, Pa.,	182,881
11. Rensselaer county, N. Y.,	177,967
12. Montgomery county, Pa.,	168,628
13. Lackawanna county, Pa.,	151,273
14. Milwaukee county, Wis.,	128,191
15. St. Louis county, Mo.,	102,644
Total, (15 counties,)	3,783,673

Counties of the second class, producing between 60,000 and 100,000 tons of pig iron, rolled iron, steel, and blooms.

COUNTIES.	Net tons.
1. Lawrence county, Pa.,	88,443
2. Lancaster county, Pa.,	87,019
3. Ohio county, W. Va.,	84,767
4. Will county, Ill.,	84,094
5. Montour county, Pa.,	79,789
6. Chester county, Pa.,	78,363
7. Warren county, N. J.,	76,622
8. Trumbull county, O.,	73,369
9. Lebanon county, Pa.,	73,149
10. Lawrence county, O.,	70,794
11. Schuylkill county, Pa.,	70,609
12. Baltimore county, Md.,	69,944
13. Blair county, Pa.,	68,039
14. Essex county, N. Y.,	66,725
15. Philadelphia county, Pa.,	65,983
16. Wayne county, Mich.,	63,548
17. Duchess county, N. Y.,	61,637
Total, (17 counties,)	1,262,894

THE CENTER OF TOTAL PRODUCTION.

The geographical center of production of the iron and steel industries of the United States in the census year 1880, has been made the subject of a very careful calculation by Mr. George W. Cope, my principal assistant in the collection of the statistics which are condensed in this preliminary report. The center of production is the point at which equilibrium would be reached were the country taken as a plane surface, itself without weight, but capable of sustaining weight, and loaded with its production of iron and steel, each ton exerting pressure on the pivotal point directly proportioned to its distance therefrom.

The center of production of iron and steel in the United States, in the census year 1880, was found to be at 40° 43′ north latitude and 79° 20′ longitude west from Greenwich. This point is in the State of Pennsylvania, on the boundary line between Armstrong and Indiana counties, and about 12 miles north-east of Apollo, and 12 miles west of the town of Indiana—Laufman & Co.'s rolling-mill, at Apollo, being the nearest iron works. At the center of production thus ascertained, iron has never been manufactured in any form.

MINERAL PRODUCTS USED BY THE IRON AND STEEL WORKS OF THE UNITED STATES.

It is necessary to explain that the figures of "hands employed" and "wages paid" refer to the labor directly employed at the various iron and steel works of the country and in the mining and other operations conducted in direct connection with these works. They do not include the labor employed in independent and often remote mining operations which supply our iron and steel industries with ore and coal and other raw materials. The statistics of these operations are being compiled by other hands. If the "hands employed" and "wages paid" in these independent mining

operations were added to the figures given in our tables, the total number of persons directly supported by our iron and steel industries in 1880, and the total amount of wages paid to them would be largely increased. This will be made plain by the presentation, in the following table, of the quantities of mineral products used by the iron and steel works of the country in 1880:

WORKS.	Iron ore. Net tons.	Limestone. Net tons.	Anthracite coal. Net tons.	Bituminous coal. Net tons.	Coke. Net tons.
Blast furnaces,	7,256,684	3,169,149	2,615,182	1,051,753	2,128,255
Rolling-mills,	363,959	.....	526,126	3,915,377	14,834
Bessemer and open-hearth steel works,	7,327	.....	140,458	465,655	104,980
Crucible steel works,	2,128	.....	40,392	224,657	22,791
Forges and blomaries,	79,610	.....	340	1,613	6,695
Total,	7,709,708	3,169,149	3,322,498	5,659,055	2,277,555

Of the iron ore and limestone given in the table, at least one half was purchased from independent producers; of the anthracite coal, nearly all was so purchased; and of the bituminous coal and coke, fully two thirds was so purchased.

CERTAIN RAW MATERIALS USED IN THE MANUFACTURE OF IRON AND STEEL.

To the above are added below tables showing the quantities of all other leading raw materials used in the census year 1880, in the manufacture of iron and steel.

WORKS.	Bushels of charcoal.	Mill cinder.	Pig iron.	Old iron rails.	Scrap iron.	Ore blooms.	Pig or scrap blooms.	Muck bar purchased.
		Net tons	*Net tons*	*Net tons*	*Net tons*	*Net tons*	*Net tons*	*Net tons*
Blast furnaces,	53,909,828	354,048						
Rolling-mills,	2,569,755	.....	1,574,693	708,534	422,232	14,147	46,861	53,754
Bessemer and open-hearth steel works,	37,552	.....	966,603	.....	13,911	16,053	250	
Crucible steel works,	60,594	....	17,226	.....	1,952	13,211	2,400	
Forges and blomaries,	13,014,361	.....	38,113	.....	8,933			
Total,	69,592,091	354,048	2,596,635	708,534	447,078	43,411	49,511	53,754

WORKS.	Spiegeleisen.	Old steel rails & crop ends.	Bessemer steel ingots and blooms purchased.	Open-hearth ingots and blooms purchased.	Scrap steel.	Swedish billets and bars.	Other billets and bars.	Barrels of oil used as fuel.
	Net tons.	*Net tons*	*Net tons*	*Net tons*	*Net tons*	*Net tons*	*Net tons*	
Bessemer and open-hearth steel works,	86,138	85,653	42,939	17,713	90,645			
Crucible steel works,	.....	.....	.....	.....	19,726	10,410	16,496	
Forges and blomaries,	.....	.....	.....	.....	.....	.....	.....	853
Total,	86,138	85,653	42,939	17,713	110,371	10,410	16,496	853

TABLE A.—*Grand aggregate for the United States of all Blast-furnaces, Rolling-mills, Steel Works, and Forges and Blomaries, with their division among the four leading sections:*

STATES AND TERRITORIES.	Number of establishments in the census year 1880.	Capital invested in the census year 1880.	HANDS EMPLOYED AND WAGES PAID IN THE CENSUS YEAR 1880.						Value of all materials used in the census year 1880.	Value of all products made in the census year 1880.	Weight of all products made in the census year 1880.	Weight of all products made in the census year 1870.
			Males above 16 years.	Males below 16 years.	Females above 15 years.	Females below 15 years.	Total hands.	Total amount paid in wages.				
											Net tons.	*Net tons.*
Eastern.												
Maine,	8	$450,000	683	17	....	...	700	$141,494	$380,511	$583,328	19,866	17,138
New Hampshire,	2	65[illegible],000	289	1	....	...	290	127,690	523,355	8[illegible]7,340	7,978	
Vermont,	4	410,000	190	1	....	...	191	50,035	240,965	392,300	6,629	1,525
Massachusetts,	30	6,738,408	6,367	125	21	...	0,513	2,576,539	6,657,232	10,288,921	141,321	86,146
Rhode Island,	3	63[illegible],000	200	75	....	..	275	130,969	375,347	488,040	8,134	4,415
Connecticut,	19	2,682,000	663	22	....	...	685	331,184	1,341,225	1,998,698	38,061	25,305
New York,	89	21,543,221	10,697	747	....	...	11,444	4,099,451	13,395,229	22,219,219	598,300	448,257
New Jersey,	40	9,099,050	4,711	81	...	...	4,792	1,808,448	6,556,283	10,341,896	243,860	115,262
Pennsylvania,	366	107,304,782	54,637	3,297	12	6	57,952	25,095,850	92,267,030	145,576,268	3,616,668	1,836,808
Total,	556	$149,507,461	78,437	4,366	33	6	82,842	$34,361,660	$121,737,112	$192,696,010	4,671,808	2,534,856
Southern.												
Delaware,	9	1,431,469	818	49	....	...	867	$344,476	$1,214,050	$2,347,177	33,918	8,307
Maryland,	23	4,902,125	2,650	107	....	...	2,763	905,090	2,888,574	4,470,050	110,934	95,424
District of Columbia,	1	89,600	18	....	....	...	18	7,528	2,264	10,970	264	
Virginia,	44	4,329,713	2,399	121	2	...	2,522	665,432	1,496,151	2,585,999	55,722	37,836
North Carolina,	20	759,400	63	....	....	...	63	7,907	11,792	41,085	439	1,801
Georgia,	14	1,135,900	1,266	37	....	...	1,303	185,489	631,707	990,850	35,152	9,634
Alabama,	14	3,309,190	1,581	45	....	...	1,626	571,713	601,073	1,452,856	62,986	7,060
Texas,	1	40,000	140	....	....	...	140	27,720	23,580	36,000	1,400	
West Virginia,	20	3,913,610	3,789	341	....	..	4,121	1,541,816	3,484,625	6,054,032	147,487	72,337
Kentucky,	29	5,493,035	3,831	264	....	...	4,095	1,344,400	3,223,799	5,090,029	123,751	86,732
Tennessee,	43	3,681,776	2,758	309	10	...	3,077	659,773	1,376,059	2,274,203	77,100	34,305
South Carolina,	...	.....	..	..	....	...	.....	.....	... ...	.....	.....	443
Total,	218	29,145,830	19,310	1,273	12	..	20,595	$6,261,344	$14,953,674	$25,353,251	649,153	353,879

Western.												
Ohio,	134	25,141,294	18,885	1,171	. . . .	15	20,071	$8,265,070	$23,997,915	$34,918,369	930,141	449,768
Indiana,	12	2,283,000	1,883	165	. . . .	. . .	2,048	864,921	3,293,073	4,551,403	96,117	64,148
Illinois,	21	6,461,620	4,887	366	. . . .	. . .	5,253	2,508,718	14,977,145	20,545,289	417,967	25,761
Missouri,	22	9,152,472	2,989	159	. . . .	. . .	3,139	734,575	3,249,558	4,660,530	125,758	94,890
Michigan,	22	4,175,386	3,054	35	. . . .	. . .	2,089	922,597	3,279,420	4,591,613	142,716	86,679
Wisconsin,	9	2,843,218	2,088	65	. . . .	. . .	2,153	1,004,931	3,830,667	6,580,391	178,935	42,234
Minnesota,	1	150,000	180	. . . .	. . . .	. .	180	25,275				
Kansas,	2	450,000	570	60	. . . .	. . .	630	166,500	734,245	1,004,100	19,055	
Nebraska,	1	100,000	90	10	. . . .	. .	100	50,000	114,500	82,000	2,000	
Total,	224	50,755,990	34,626	2,022	. . .	15	36,663	$14,542,587	$53,476,523	$76,933,686	1,912,689	763,480
Pacific.												
Colorado,	1	100,000	125	. . . .	. . . .	. . .	125	$7,000	$131,700	$225,000	4,500	
California,	1	1,000,000	284	35	. . . .	. . .	319	177,722	535,590	780,000	14,000	3,000
Oregon,	1	100,000	247	3	. . . .	. . .	250	46,822	33,073	78,393	3,200	
Utah Territory,	3	150,000	. . . .	. . .	. . . .	. . .						
Wyoming Territory,	1	212,603	174	10	. . .	. .	184	79,650	403,568	491,345	9,790	
Total,	7	1,562,603	830	48	. . .		878	$311,194	$1,103,841	$1,574,738	31,490	3,000
Total of United States, 1880,	1,005	230,971,884	133,203	7,709	45	21	140,978	$55,476,785	$191,271,150	$296,557,685	7,265,140	
Total of United States, 1870,	858	121,772,074	75,037	2,436	82	. .	77,555	$40,514,981	$135,526,132	$207,278,696	. . . . .	3,655,215
Per cent. of increase, 1880,	24.38	89.68	77.52	216.46	. . . .	. . .	81.77	36.93	41.13	43.12	98.76	
Per cent. of decrease, 1870,	. . .	. . . . .	. . . .	. . . .	45.12							

TABLE B.—*Production of pig iron, rolled iron, steel, and blooms, in the United States in the census year 1880.*

STATES.	Net tons of pig iron, including castings, direct from the furnace.	Net tons of rolled iron.	Net tons of Bessemer steel ingots.	Net tons of open-hearth steel ingots.	Net tons of crucible steel ingots.	Net tons of blister and other steel.	Net tons of blooms made from ore.	Net tons of blooms made from pig and scrap iron.
Alabama,	62,336	650	.....	.....	.....	.....	.....	.....
California,	.....	14,000	.....	.....	.....	.....	.....	.....
Colorado,	.....	4,500	.....	.....	.....	.....	.....	.....
Connecticut,	18,779	16,203	.....	.....	2,116	.....	.....	.....
Delaware,	.....	33,918	.....	.....	.....	.....	102	450
Georgia,	23,099	11,501	.....	.....	.....	.....	.....	.....
Illinois,	95,468	117,051	253,514	925	130	.....	.....	.....
Indiana,	18,237	77,880	.....	.....	.....	.....	.....	.....
Kansas,	.....	19,055	.....	.....	.....	.....	.....	.....
Kentucky,	58,108	65,293	.....	275	75	.....	.....	.....
Maine,	2,015	8,851	.....	.....	.....	.....	.....	3,661
Maryland,	59,664	47,609	.....	.....	.....	.....	.....	44
Massachusetts,	9,543	109,252	.....	9,475	140	.....	.....	.....
Michigan,	119,586	23,130	.....	.....	.....	.....	.....	.....
Missouri,	95,050	16,508	8,409	.....	.....	.....	4,000	.....
Nebraska,	.....	2,000	.....	.....	.....	.....	.....	.....
New Hampshire,	.....	4,752	.....	4,521	.....	.....	.....	.....
New Jersey,	157,414	66,030	.....	450	10,492	.....	523	3,306
New York,	313,368	163,538	84,160	.....	2,585	.....	31,580	138
North Carolina,	.....	.....	.....	.....	.....	.....	439	.....
Ohio,	548,712	272,094	82,811	24,712	360	.....	.....	.....
Oregon,	3,200	.....	.....	.....	.....	.....	.....	.....
Pennsylvania,	1,930,311	1,071,098	556,314	36,944	60,303	3,135	175	24,398
Rhode Island,	.....	8,134	.....	.....	.....	.....	.....	.....
Tennessee,	47,873	25,381	.....	4,000	.....	.....	756	345
Texas,	1,400	.....	.....	.....	.....	.....	.....	.....
Vermont,	620	1,500	.....	3,000	.....	.....	.....	.....
Virginia,	17,906	35,176	.....	.....	.....	.....	58	2,582
West Virginia,	80,050	67,437	.....	.....	.....	.....	.....	.....
Wisconsin,	118,282	60,653	.....	.....	.....	.....	.....	.....
District of Columbia,	.....	264	.....	.....	.....	.....	.....	.....
Territory of Wyoming,	.....	9,790	.....	.....	.....	.....	.....	.....
Total,	3,781,621	2,353,248	985,208	84,302	76,201	3,135	37,633	34,924

TABLE C.—*Details of production, embracing certain special varieties of Iron and Steel, manufactured in the census year 1880.*

STATES.	Net tons of castings direct from the furnace (included in Table B.)	Net tons of sheet-iron (included in Table B.)	Net tons of boiler-plate iron (included in Table B.)	Net tons of other plate iron except nail-plate (included in Table B.)	Kegs of cut nails of 100 lbs each (included in Table B.)	Net tons of hoop iron (included in Table B.)	Net tons of iron rails (included in Table B.)	Net tons of Bessemer steel rails.	Net tons of open-hearth steel rails.	Total production of all kinds of rails (net tons.)
Alabama,						500				
California,							6,000			6,000
Colorado,							4,500			4,500
Delaware,		5,243	1,241	2,482						
Georgia,							8,673			8,673
Illinois,					222,540		72,802	201,186		273,998
Indiana,		6,383	54		280,760		38,600			38,600
Kansas,							13,500			13,500
Kentucky,	93	4,784	5,375	3,155	210,000	785	18,000			18,000
Maine,					4,480	375				
Maryland,	20	3,178	6,612	3,702		12	9,280			9,280
Massachusetts,			1,879	23,410	490,880	3,983	5,600			5,600
Michigan,	86	1,300	4,600							
Missouri,								5,100		5,100
Nebraska,					40,000					
New Hampshire,			100							
New Jersey,	80	1,150			296,060					
New York,	62			2,750	12,220	3,077	34,305	57,870		92,175
Ohio,	1,011	14,440	9,180	7,050	733,940	23,149	41,838	66,480		108,318
Pennsylvania,	2,217	54,174	60,519	52,162	1,504,000	64,722	157,213	409,339	3,360	569,912
Tennessee,	140				104,180		12,800		2,745	15,545
Vermont,							1,500	1,500	3,000	6,000
Virginia,	121				101,640					
West Virginia,	307	4,340			1,055,900	240	3,333			3,333
Wisconsin,	92						29,552			29,552
District of Columbia,				38						
Territory of Wyoming,							9,421			9,421
Total,	4,229	94,992	89,560	94,749	5,056,600	96,843	466,917	741,475	9,105	1,217,197

IRON FOUNDRIES.

A TABLE *showing the production, etc., of iron foundries of the State of Pennsylvania as reported for the year ended December 31, 1880.*

NAME OF ESTABLISHMENT.	Number and capacity of cupolas in tons.	Number of tons of iron casting.	Number of pounds of brass castings.	Number of persons employed.	Number of days in operation.	REMARKS.
Allegheny County.						
Fort Pitt Foundry,	4—10	4,265	.....	161	338	One 15 ton air furnace, engines, castings, and machinery.
West Point Foundry,	1—$2\frac{1}{2}$	324	.....	15	309	Iron castings.
Heela Foundry,	2—10	1,743	.....	34	300	Iron castings.
Birmingham Foundry and Machine Works,	1—5	751	.....	25	307	
Riverside Foundry and Machine Shops,	1—4	350	.....	33	305	Engines, castings, and machinery.
Lafayette Stove Works,	1—6	600	.....	46	250	Stoves, ranges, grates, and fronts.
Keystone Stove Works,	1—6	1,500	.....	50	280	Stoves, grates, and fronts.
Bissell & Co. Stove Works,	1—8	900	.....	50	275	Stoves, ranges, and grates.
Carburetted Bronze Works,	2—	125	.....	7	300	One brass furnace, 600 pounds daily. Railway and rolling-mill bearings.
Pittsburgh Foundry Facing-Mills,	.....	.....	.....	4	300	Foundry facings.
Robert Lea,	1—5	200	.....	31	307	Engines, (Marine.)
Livingston Novelty Works,	1—	600	10,000	76	295	Domestic hardware and light-cast goods.
McConway, Torley & Co.,	1—3	600	.....	55	300	2 air furnaces. Malleable iron castings.
Pittsburgh Manufacturing Company,	2—10	700	.....	45	280	Castings, rivets, washers, bolts, etc.
Keystone Steam Pump Works,	.....	.....	40,000	20	310	Steam pumps and brass castings.
Iron City Works,	2—30	1,750	.....	70	308	Blast furnace, rolling-mill machinery.
Armstrong County.						
Kittanning Foundry,	1—$2\frac{1}{2}$	150	.....	7	286	Stoves, coal car wheels, castings.
Beaver County.						
A. F. Wolfe Stove Works,	1—12	900	.....	57	300	Stoves.
M. & S. H. Darrach,	1—2	50	.....	8	200	All kinds of castings.
Bedford County.						
Bedford Foundry and Machine Shop,	.....	24	.....	4	.....	Threshing machines and plows.
Everett Foundry and Machine Shop,	1—	25	.....	3	250	Plows and plow castings.
Keystone Foundry and Machine Shop,	1—	85	500	7	200	Car wheels, castings, mine, and furnace castings.
Waterside Foundry and Machine Shop,	1—	55	.....	3	.....	General repairs.

Berks County.						
Scott Foundry,	1—10 1—25	2,790		252	308	Three air furnaces, 1—10; 1—15; 1—25 tons. Machinery and castings.
Philadelphia and Reading Railroad Co.'s Foundry,	4—15	10,073		126	330	Car wheels and general machinery.
Franklin Iron Works,	2— 8	1,200		81	308	Engines, cars, castings of every description.
Wellert Foundry and Machine Company, (limited,)	2—25 1—12	2,489		100	300	Machinery and other castings.
Kutztown Foundry and Machine Shop,		110	1,000	20	300	Engines, mill, and mining machinery.
Reading Stove Works,		2,300		159	255	Stoves, heaters, and ranges.
Pennsylvania Hardware Company,	1— 7 1— 5	1,500		164	290	Builder's hardware.
William H. Robinson,	1— 5 1—10	100		13	250	Engines and iron working machinery.
Fleetwood Foundry and Machine Shop,	1— 3 1— 5	500		62	308	Engines, mining, and agricultural machinery.
Bernville Foundry and Machine Shop,	1— 5	10		5	150	Agriculture and mill work.
Blair County.						
Gaysport Foundry and Machine Shop,	2—10	960	2,198	40	308	Engines, castings, and machinery generally.
Bradford County.						
Cayuta Wheel and Foundry Company,				51	275	Cast-iron car wheels, (20,000 car wheels.)
Bucks County.						
New Hope Agricultural Works,	1— 1	25		11	230	Threshers, corn-shellers, etc.
Newtown Agricultural Works,	1— 1½	100		30	275	Mowers, reapers, hay rakes, etc.
Butler County.						
Harmony Foundry,	1— 1	75		4	275	Stoves, plows, etc.
Cameron County						
Emporium Foundry and Machine Shop,	1— 1	30	200	4	309	Car wheels and mill works.
Carbon County.						
Lehigh Stove and Manufacturing Company,	1— 7	639		33	282	Stoves and small castings.
Chester County.						
Broomall, Miles & Co.,		100	800	26	310	Steam engines and mill machinery.
Chester County Industrial Works,	1— 3	50	250	13	300	Steam engines and mill machinery.
Brandywine Machine Works,	1— 4	200	6,000	24	300	Steam engines and mill machinery.
Clarion County.						
Strattonville Foundry and Machine Shop,	1— 1	30		6	100	One air furnace, plows, and machine castings.
Rimersburg,	1— 2	50		6	234	Plows, stoves, etc.
Clearfield County.						
Clearfield Foundry and Machine Shop,	1— 1½	100		22	304	Engines, boilers, and mill machinery.
West Clearfield Foundry,		4		2		Plow castings and grates.
James Thompson,	1—	10		1	150	Plow shears and country work.
Clinton County.						
Renova Shops,	2—13 1— 7	1,193	44,000	684	304	Locomotives and cars.

IRON FOUNDRIES—*Continued.*

NAME OF ESTABLISHMENT.	Number and capacity of cupolas, in tons.	Number of tons of iron castings.	Number of pounds of brass castings.	Number of persons employed.	Number of days in operation.	REMARKS.
Columbia county.						
Bloom Iron Works,	1— 3	200	300	12	300	General jobbing.
Eagle Iron Works,	1— 3	75	. . . . .	5	234	Stoves, plows, and castings generally.
Agricultural Works,	1— 1½	50	. . . . .	9	250	Threshing machines and plows.
Rohrsburg Iron Foundry,	1— 1	8	. . . . .	1	100	Plows, wood, and iron beams.
Crawford county.						
Aimes Manufacturing Company,	2—	500	100,000	217	300	Machinery of every description.
Union Foundry,	1— 2	100	. . . . .	5	156	General jobbing.
Keystone Iron Works and Planing Mill,	1— 4	50	500	9	156	Mill machinery and repairs.
Cumberland county.						
Carlisle Car and Machine Works,	1— 6	1,000	. . . . .	120	300	Cars and agricultural machinery.
Dauphin county.						
Millersburg Foundry and Machine Shop,	1— 1½	15	400	6	260	Grist and saw-mill, and agricultural.
Delaware county.						
Phœnix Iron Works,	1— 3½	64	. . . . .	25	308	Mill machinery, shafting, &c.
Elk county.						
St. Mary's Foundry,	1— 1	15	. . . . .	5	150	Agricultural machinery.
Erie county.						
Davenport, Fairbain & Co.,	3—15	12,400	. . . . .	90	. . . . .	Car wheels and railroad castings.
Presque Isle Iron Works,	1— 5	1,416	12,119	316	307	Machinery.
	1—10		*3,559			*Gun-metal castings. Specialty, saw-mill machinery. Turned out for the year, 65 mills, 65 edges, 361 head-blocks, together with 172 engines, and 203 boilers, and all other saw-mill machinery.
Union City Iron Works,	3	45	1,200	12	284	Steam engines, shafting, pulleys, &c.
Skinner & Wood,	1— 4	345	. . . . .	54	300	Portable and stationery engines.
Selton & Griswold Manufacturing Company,	. . . . .	. . . . .	. . . . .	45	300	Stove hardware and small castings.
S. Liley & Son Iron Works,	. . . . .	. . . . .	. . . . .	2	. . . . .	General repairing.
Gibbs & Sterrell Manufacturing Company,	2—	2,000	200,000	186	310	Mowers, reapers, steam engines, &c.
Fayette county.						
Union Foundry,	1— 1	20	. . . . .	3	. . . . .	Stoves, plows, and castings.

Huntingdon county.						
Simpson's Foundry,	1—	25	.....	2	308	Ornamental castings, railings, &c.
Indiana county.						
Armagh Foundry,	1—	50	.....	5	300	
Dimonville Foundry,	1— 1	50	.....	2	.....	Plows and machine castings.
Lackawanna county.						
Dickson Manufacturing Company,	2— 8 3—13	3,089	79,267	490	308	Locomotives and stationery engines.
Waverly Manufactory,	1— 1	30	.....	2	308	Agricultural implements.
Old Forge,	1— 1½	30	.....	3	175	One air furnace, plows, &c.
Lancaster county.						
Columbia Foundry and Machine Shop,	1— 6	260	2,500	22	308	Steam engines and machinery.
Christiana Machine Company,	1— 5	180	2,000	35	300	Steam engines and machinery.
Ephrata Iron Works,	1— 1	50	.....	6	300	Turbine water-wheels and mill gearing.
Brunnersville Agricultural Works,	1— 1½	76	.....	12	308	Threshers, separators, and castings.
Lawrence county.						
New Castle Foundry and Machine Shop,	1— 3	200	2,000	27	308	Steam engines, water-wheels, and one 10 ton air furnace.
Lawrence Foundry and Machine Shop,	2— 6	250	4,000	.....	282	Engines, mill, and rolling castings.
Lebanon county.						
Lebanon Manufacturing Company,	2—10	2,500	5,000	325	300	Railroad freight cars, engines, furnace, and rolling-mill work.
Lehigh county.						
H. H. Fisher,	1— 5 1— 0 1—40	3,500	.....	98	300	Cast-iron gas and water pipes, car castings, and general foundry work.
Allentown Foundry and Machine Shop,	2—10	300	.....	57	308	Turbine wheels, mill-gearing, steam engines, and general foundry work.
Davies & Thomas Foundry and Machine Works,	2—14	4,000	.....	145	310	Foundry and machine work.
Allentown Iron Company,	1— 5	.....	.....	22	312	Repairing machinery.
Lehigh Car Wheel and Axle Works,	1—10 2—25	12,000	.....	153	320	Car wheels and axles.
Pleasant Corner Foundry,	1—	40	.....	2	180	Plow shears.
Luzerne county.						
Vulcan Iron Works,		790	8,000	77	300	Engines, boilers, mining machinery.
G. W. Mooers,	1— 3	185	.....	7	300	Mine, car, and stove castings.
Boyd & Engel,	1—	36	.....	2	279	Mine work, plows, grates, &c.
Wyoming Plow Factory,	1—	36	.....	2	230	Plows.
Conyngham Foundry and Plow Works,		40	.....	4	304	Plows and plow castings.
Mrs. Courtland Gates,	1—	60	.....	4	200	Miscellaneous.
Lycoming county.						
Novelty Iron Works,	1—	50	300	15	300	Engines and general mill work.
Rowley & Hermance,	1— 3	300	14,000	84	308	Wood-working machinery.
Monroe county.						
Keystone Foundry and Machine Shop,	1— 2	100	1,000	10	312	Engines, mill work, and plows.

IRON FOUNDRIES—*Continued.*

NAME OF ESTABLISHMENT.	Number and capacity of cupolas, in tons.	Number of tons of iron castings.	Number of pounds of brass castings.	Number of persons employed.	Number of days in operation.	REMARKS.
Montgomery county.						
Eagle Works,	1—10	700	3,100	60	310	Heavy machinery, iron and brass castings, and boilers.
Montgomery Boiler, Machine Works, & Iron Foundry,	1— 5	214	. . . . .	34	309	Boilers, heaters, and castings.
Montour county.						
Enterprise Foundry and Machine Works.	1—10	440	2,300	28	310	Engines and machinery.
Northampton county.						
Eagle Foundry,	1— 5	180	. . . . .	23	296	Machinery for flour and saw mills, and general jobbing and repairing.
South Easton Shops,	1—	649	225,322	344	310	Locomotive and passenger car repairs, and miscellaneous work.
Bartrom & Black Manufacturing Company,	1—	50	150	5	310	Steam engines and slate machinery.
Saucon Foundry,	1— 1	85	500	11	300	Mill work and mining machinery.
Slimersville Hardware Works,	2— 5	350	. . . . .	40	306	Sad irons, scales, butts, &c.
Northumberland county.						
George Rohrback & Sons,	1— 5	75	. . . . .	8	250	Plows, cultivators, and castings.
J. J. Batman,	1—	75	200	11	308	Farming implements.
Perry county.						
Bloomfield Foundry,	1— 2	50	. . . . .	5	275	Plows, stoves, and mill gearing.
Green Park Foundry and Machine Shop,	1— 1	25	. . . . .	5	308	Plows, grain-cradles, &c.
Clinton Foundry,	1— 1	15	. . . . .	. . . . .	. . . . .	Plows, threshing machines, &c.
Philadelphia county.						
Eagle Iron Foundry,	1— 8	1,500	. . . . .	45	308	All kinds of iron castings.
Stanley G. Flagg,	2—10	1,000	. . . . .	220	308	One air furnace, 10 ton. Grey, malleable iron, and steel castings.
William Bement & Son,	2—15	2,000	. . . . .	400	311	Machinists' tools.
Chambers Machine Works,	1— 2	120	. . . . .	89	308	Folding machines, brick machines, paper cutters, bolt-clippers, engines, &c.
	1— 7					
Shackamaxon Steam Engine and Boiler Works,	. . . . .	. . . . .	. . . . .	35	310	
Fairmount Machine Works,	1— 5	905	. . . . .	155	308	Cotton and woolen machinery.
James Butterworth & Son,	. . . . .	. . . . .	. . . . .	11	303	Rag-pickers, rag-duster, cotton and woolen willows.
Howard Foundry and Machine Works,	. . . . .	. . . . .	. . . . .	28	310	General machinery.
Penn Stove Works,	2—15	1,285	. . . . .	93	283	Cooking and heating stoves.
Leibrandt & McDowell Stove Works,	1—	3,000	. . . . .	181	308	One Air furnace. Stoves, heaters, ranges, and castings.

Excelsior Stove Works,	1—10 1—15	3,000	.....	189	290	Stoves, heaters, ranges, and castings.
Spring Garden Stove and Hollow-ware Works,	1—20	2,000	.....	140	250	Stoves, tinned, and enameled hollow-ware.
Thomas S. Dixon & Sons,				38	300	Grates, furnaces, and ranges.
William Sellers & Co.,	3—	2,992	128,220	520	310	Machine tools, shafting, and injectors.
Potter county.						
Coudersport Foundry and Machine Shop,	1— 1	25	.....	1	50	
Schuylkill county.						
Minersville Iron Works,	1— 5 1—10	400	1,200	32	308	All kinds of heavy machinery.
Franklin Iron Works,	1— 8	350	.....	69	303	Steam engines, pumps, air compressors, rock drill, &c.
Ashland Iron Works,	1—10	600	6,000	36	308	Mining and mill machinery.
Donaldson Iron Works,	1— 4 1— 8	183	300	15	280	Mining machinery and engines.
Tremont Iron Works,	1—	130	1,500	16	285	Colliery repair work principally.
Phila. and Reading Coal and Iron Co. Repair Shop,	1—	1,540	38,460	240	310	Colliery machinery and repairs.
Tamaqua Stove and Hollow-ware Works,	1— 8	112	.....	10	250	Stoves, hollow-ware, pipes, and light machinery.
Somerset county.						
Meyersdale Iron Works,	1— ¾	40	100	7	308	Agricultural implements, &c.
Berlin Foundry,	1—	100	.....	3	200	Stoves and farm utensils.
Tioga county.						
Knoxville Foundry,	1—	30	.....	3	313	Plows and farming utensils.
T. I. Mooers,	1— 2½	120	2,000	6	300	Railroad car engine, and mine machinery.
Union county.						
Enterprise Foundry,	1— 1	40	.....	9	300	
Warren county.						
Struthers Iron Works,	1— 5	1,000	10,000	110	300	Oil well, saw-mill, and turning machinery.
Irvine Foundry,	1—	25	.....	2	200	Plows and castings.
Wyoming county.						
Tuscarora Iron Works,	1—	50	.....	5	300	Saw-mill machinery and agricultural.
York county.						
George F. Baugher,	3—	4,000	.....	151	308	Three cupolas, 25 tons capacity. Water-wheel, mill machinery, and car castings.

RECAPITULATION.

Number of establishments to whom blanks were sent,	418
Number of establishments responding,	140
Number of employees,	8,525
Number of cupolas,	174
Number of tons of iron castings,	116,320
Number of pounds of brass castings,	944,767

GLASS MANUFACTURE.

WINDOW GLASS.

A TABLE *showing the characteristics and production of the Window Glass Works of the State of Pennsylvania, as reported, for the year ended December 31, 1880.*

NAME OF OPERATORS.	Number of furnaces.	Number of pots.	Number of persons employed.	Number of days in operation.	Number of boxes (50 feet each) manufactured.	REMARKS.
Allegheny County.						
Duncan, Campbell & Co.,	1	10	53	275	30,000	
Thomas Wightman & Co.,	2	20	129	260	50,000	
Ihmsen & Co.,	1	10	55		26,000	
S. McKee & Co.,	2	20	109	225	55,000	
Fayette County.						
Schmertz & Quinby,	1	10	56	238	32,000	
Lawrence County.						
Croton Glass Works, Limited,	1	8	52	270	28,000	
Tioga County.						
Hirsch, Ely & Co.,	1	8	48	260	25,000	

RECAPITULATION.

Number of establishments to whom blanks were sent,	32
Total number of establishments,	7
Total number of persons employed,	502
Total number of furnaces,	9
Total number of pots,	86
Total number of boxes (fifty feet each) produced,	246,000

FLINT AND GREEN GLASS.

A TABLE *showing the characteristics and production of the Flint and Green Glass Works of the State of Pennsylvania, as reported, for the year ended December 31, 1880.*

NAME OF OPERATORS.	Number of furnaces.	Number of pots.	Number of persons employed.	Number of weeks in operation.	Amount of product.	DESCRIPTION OF WARE.
Allegheny County.						
Bryce, Walker & Co.,	2	22	167	50	$157,000 00	Crystal and opal table-lamps—perfumery.
Campbell, Jones & Co.,	2	20	135	42	120,000 00	Table glassware.
Doyle & Co.,	1	10	100	48	100,000 00	Tableware.
Evans & Co.,	2	20	138	39	125,000 00	Lamp chimneys, spice jars, and jelly tumblers.
Bryce, Higbee & Co.,	1	11	91	42	90,000 00	Tableware.
Lindsay Flint Glass Co., Limited,	1	10	112	16	30,000 00	Chimneys and goblets.
O'Hara Glass Company, Limited,	2	20	140	45	135,000 00	Pressed flint glassware.
Tibby Bros.,	3	30	217	52	215,000 00	Druggists' prescription ware.
Independent Glass Company,	1	10	101	12	23,407 00	Lime lamp chimneys.

FLINT AND GREEN GLASS—*Continued.*

NAME OF OPERATORS.	Number of furnaces.	Number of pots.	Number of persons employed.	Number of weeks in operation.	Amount of product.	DESCRIPTION OF WARE.
Beaver County.						
Co-operative Flint Glass Co., Llm.	1	10	81	45	$75,000 00	General line of tableware.
Phœnix Glass Company,	1	11	111	14	.....	62,2 8 9-12 dozen lead glass chimneys, 809 3-12 doz. S. G. reflectors.
The Rochester Tumbler Company,	4	46	349	50	.....	1,119,159 dozen tumblers.
Monroe County.						
East Stroudsburg Glass Co., Llm.,	1	5	75	52	80,000 00	Bottles—green and amber.
Philadelphia County.						
H. C. Fox & Sons,	3	25	222	2 fur. 52 1 fur. 26	169,000 00	Druggists' and perfumers' bottles.
Rohrbacher & Hormann,	2	15	200	1 fur. 48 1 fur. 6	137,659 62	Lamp chimneys and gas-globes.
McCrea, Gill & Murray,	1	8	129	44	140,600 00	Opal, blue crystal and flint globes, chimneys, &c.
Storm Bros.,	2	16	250	50	175,000 00	Flint bottles and lamp goods.

RECAPITULATION.

Number of establishments to whom blanks were sent,	56
Total number of establishments,	17
Total number of persons employed,	2,618
Total number of furnaces,	30
Total number of pots,	289

Products.

Lead glass chimneys, (dozen,)	62,278 9-12
Silvered glass reflectors, (dozen,)	809 3-12
Tumblers, (dozen,)	1,119,159
Value of product, (not otherwise specified,)	$1,772,666 62

A summary of the glass manufactories of the United States, compiled from the "Directory of the Glass Works of the United States," prepared by Joseph D. Weeks, Esquire, special agent in charge of statistics of the manufacture of glass.

CLASS OF WARE MANUFACTURED.	UNITED STATES.			PENNSYLVANIA.		
	Number of Establishments.	Number of Furnaces.	Number of Pots.	Number of Establishments.	Number of Furnaces.	Number of Pots.
Plate glass,	6	11	122			
Window glass,	58	90	752	21	35	292
Flint glass,	89	161	1,363	42	71	623
Green glass,	52	81	502	13	19	149
Total,	205	343	2,739	76	125	1,064

CARRIAGES AND WAGONS.

A TABLE *showing the production etc., of Carriage and Wagon Works of the State of Pennsylvania, as reported for the year ended December 31, 1880.*

NAME OF FIRM OR COMPANY.	Number of days in operation during the year.	Number of persons employed.	Amount of annual product.	REMARKS.
Allegheny County.				
John C. Schafer, junior, & Bro.,	300	15	$20,000	Carriages, buggies, and wagons.
G. A. Schnabel,	307	8	11,642	Light carriages and wagons.
Thomas Scoley,	308	15	. .	Carriages, barouches, and buggies.
Vandevort & Little,	308	12	7,000	Carriages and wagons.
Harper Bros.,	307	4	1,200	Repairing.
Jacob Ruch & Bro.,	300	9	14,000	Carriages and buggies.
Bedford County.				
J. Brightbill & Son,	308	4	. . . .	18 buggies and spring wagons.
Andrew J. Pennel,	309	2	2,000	Buggies and spring wagons.
Blair County.				
J. H. Condon,	308	10	11,000	Buggies, carriages, spring wagons, and sleighs.
Chester County.				
Hoopes Bro. & Darlington, (Lim.)	308	80	135,000	Carriage wheels, spokes, rims, hubs, &c.
Starhorn, Pierson & Co.,	286	26	. . . .	Wheels, spokes, hubs, and felloes, Spokes, 275,000; hubs, 3,000 sets; felloes, 2,700 sets; wheels, 2,500 sets.
Clinton County.				
G. O. Stiver & Bro.,	300	5	2,500	Wagons of all kinds.
H. W. Garth,	128	6	4,000	Wagons, cutting boxes, and furniture.
Columbia County.				
Ellis Eves & Bros.,	308	7	6,000	Buggies, spring, and farm wagons.
A. S. Crossley, agent,	. . .	2	1,000	Buggies and spring wagons.
Cumberland County.				
Co-operative Carriage Company,	308	8	1,500	Carriages—from 15 to 20 new carriages.
George Schroeder & Son,	313	18	20,000	Carriages, buggies, and phaetons.
Joseph Bauman,	91	4	600	Carriages, buggies, and spring wagons.
Daniel Rupp,	308	7	5,000	Carriages, buggies, sleighs, and repairing.
Sherk & Hackman,	308	10	9,000	Carriages, buggies, and spring wagons.
Dauphin County.				
W. W. Boyer,	227	12	13,253	Carriages, wagons, &c.
Boyer & Attick,	308	14	13,000	Carriages, wagons, &c.
Hiveter & Co.,	300	10	13,000	Carriages and buggies.
Erie County.				
H. G. Fink,	300	21	50,200	Felloes, poles, shafts, runners, &c.
Fayette County.				
Rush & Meeks,	300	5	. . . . .	Spokes and hubs. Spokes, 2,500 sets; hubs, 1,500 sets.
Monroe County.				
John Klair & Co.,	288	13	8,000	Cart, wagon, and carriage spokes.
Northampton County.				
Samuel P. Messinger,	308	3	. . . .	Wagons and wheelbarrows.
Philadelphia County.				
Charles S. Caffrey Company,	307	20	25,000	Carriages.
William D. Rogers,	310	103	142,000	Fine pleasure carriages.

CARRIAGES AND WAGONS—*Continued.*

NAME OF FIRM OR COMPANY.	Number of days in operation during the year.	Number of persons employed.	Amount of annual product.	REMARKS.
Pike County.				
Jacob Klair, junior,	300	13	15,000	Spokes and hubs.
Schuylkill County.				
James F. Donohoe,	250	4	3,000	Carriages and buggies.
Union County.				
Jacob Gutelius,	308	9	6,000	Buggies, spring wagons, and sleighs.
T. B. Taylor,	250	7		Buggies, phaetons, and sleighs—30 buggies and phaetons; 10 to 20 sleighs.
J. H. Albright,	308	10	4,000	Carriages, spokes, and felloes.

RECAPITULATION.

Number of works to whom blanks were sent,	83
Number of works responding,	34
Number of employés,	498
Value of product, (not otherwise specified,)	$554,895

LUMBER.

A TABLE *showing the characteristics and production of Lumber, compiled from reports to the Bureau for the year ended December 31, 1880:*

BY WHOM OPERATED.	Number of persons employed.	Weeks in operation during the year.	White pine—feet.	Hemlock—feet.	Oak—feet.	Other lumber—feet.	Shingles—thousand.	Lath—thousand.	Pickets—thousand.	Staves and heading—thousand.	REMARKS.
Allegheny County.											
B. Schmidt & Co.,	16	49	918,000	64,000	43,000	4,500	455,000				Planing-mill.
McQuenan & Douglas,	6	50	600,000	100,000	2,000		400,000	50,000			
Trimble & Co.,	25	48	500,000	100,000	35,000	11,000	200,000				
Jos. A. Steen,	24	52	1,500,000	20,000	5,000	25,000	40,000				Planing-mill.
F. & J. Watson,	4	4	10,000	20,000	5,000						
John Kennedy & Sons,	13	50	300,000	100,000			360,000	100,000			Manufacture sash, doors, brackets, etc.
John Smith,	1	12		200	25,854	2,658					
S. P. & I. N. Large,	19	47	400,000	120,000	130,000			50,000			Saw and planing-mill, barge building.
Schuette & Co.,	20	48	2,500,000	500,000	5,000	2,000	1,250,000	500,000			Planing-mill, box making.
H. C. McEwen,		16			52,000	2,000					Saw and custom work.
A. Campbell,	3	12	20,000								
A. Grusch,	5	45	140,000	2,400	2,804	1,868	3,250,000				
George V. Sevin,	4	8			96,000	12,000					Saw-mill.
George McNall,		13			8,000						
Zerah Hayden,						19,700					Custom mill.
Oesterling & Langenheim,	16	52	200,000								Frames, sash, doors, &c.
C. Ritter & Bro.,	1	3			50,000			12,000			Portable saw-mill.
John Strohm,	2				15,000						Custom mill.
C. L. Willey,	5	52	500,000	150,000	50,000	255,000	200,000	200,000			Saw-mills, box factory, 400,000 boxes.
Sloner & McClure,	58	52	3,500,000	500,000	2,000,000						44,000 feet posts.
John Reilly,	3	18			32,000						Custom mill.
John Cowan,					20,000	9,000					Custom mill.
Union Planing Mill Company,	32	52	3,500,000	500,000	5,000	17,500	1,250,000	100,000			Flooring, weather-boards, doors, sashes.
R. & J. McKinney,						9,977		1,040,000			
G. S. Lacy,	30	50	3,500,000	500,000	50,050	12,000	750,000	100,000			Planing-mill.
Armstrong County.											
Townsend & Brothers,	1				25,000						Custom work.
Jeff, Hill & Co.,	4		2,000	2,000	1,000	500					Saw-mills, custom work.
J. S. Quigley,	5	16	100,000	200,000	75,000	10,000			10,000		
Isaac Fair,		13	20,000	20,000	15,000			30,000			
P. C. Hetrick,	4	36	1,000	5,000	1,000						Saw-mill.

R. Sturgeon & Son,	4	30			200,000	25,000					
G. W. Wilkins,	35	40	1,200,000	300,000			120,000	550,000			Lumber, shingles, and lathe, planing-mill, boxes and barges.
Isaac Kinnard & Son,	1	7		150	4,107						Saw-mill.
David Rarich,		12			18,000						Saw-mill.
C. K. Slease,	2	30		10,000	100,000	16,000		20,000			
Wherry's heirs,	3	6		2,000	50,000	1,500					
C. B. & J. G. Kimmel,	3	3			20,000	700					10,000 feet oak lath.
Hellman Bros.,	15	48	1,000,000	500,000	20,000	5,000	700,000	300,000			
John Hawk,	1	8			38,000	2,500	20,000				Custom sawing.
Jos. A. Whitacre,		5		1,000	3,000	1,000		2,000			Saw-mill.
J. F. Ament,	1	10			40,000	3,000					Saw-mill.
Murphy, McCain & Co.,	29	50	2,000,000	1,000,000	100,000	5,000	500,000	200,000			Saw and planing-mill.
Lasher, Gahagen & Co.,		8	3,000	8,000	5,000	3,000					
Bedford County.											
J. M. Bender,	4	49	28,000			35,000					Planing-mill.
Blair County.											
Boyer, Guyer & Co.,	25	52	50,000	150,000	50,000	50,000					Saw and planing-mill.
Booth & Mackey,	29	48	800,000	1,000,000			200,000	250,000			
S. McCamant & Co.,	15	46	1,000,000	1,150,000	150,000	90,000	1,150,000	800,000			Planing-mill.
Bradford County.											
Towanda Coal Company,	6	25		424,251		186,860	33,002				
Cambria County.											
D. & C. Moore,	25	52	300,000	400,000	20,000	39,000	250,000	20,000	45,000		10,000 broom-handles.
A. A. Barker,	6	12		200,000	65,000						
Thos. Griffith,	28			1,000,000	1,500,000	1,250,000	30,000				
T. Duncan,	3	13	10,000	10,000			450,000				
Gittings & Jones,	19	52		500,000		125,000		30,000			1,000 table-legs.
Porter Kinports,	12	35	500,000	100,000	10,000	125,000	100,000	50,000			
C. R. & H. Himmelwright,	6	25	50,000	240,000		10,000	300,000	120,000			Circular saw-mill.
M. Bracken,	24	45	50,000	1,800,000	100,000	70,000		10,000			
Benjn. Boush,	12	45		600,000	600,000	100,000					
W. I. Buck,	4	40	300,000	270,000			860,000				Contract work.
Cameron County.											
B. & F. H. Goodyear,	11	40		2,500,000							Saw-mill.
C. Elias & Co.,	11	10	200,000	200,000	50,000	50,000					Saw-mill.
Carbon County.											
F. L. McKean,			100,000	1,166,013		271,172			79,545		Lumber, pickets, [contract work.]
Tobyhanna and Lehigh Lumber Company, (Limited,)	25	24		2,527,010				127,100			
Centre County.											
Bellefonte and Snowshoe Railroad Company, / P. B. Crider & Son,	35	40	822,561	910,300	265,307	83,500	810,500	50,000	95,500		This amount (1,111,139 feet) is made into lumber by P. B. Crider & Son, who operate the mill for the B. & S. S. Ry. Co.
Irwin & Lindsey, agents,	11	24	116,696	1,172,860				200,000			480 cords hemlock bark.
T. J. Dunkel,	14			230,000	350,000	2,500					

LUMBER.—*Continued.*

BY WHOM OPERATED.	Number of persons employed.	Weeks in operation during the year.	White pine—feet.	Hemlock—feet.	Oak—feet.	Other lumber—feet.	Shingles—thousand.	Lath—thousand.	Pickets—thousand.	Staves and headings—thousand.	REMARKS.
Centre county.											
Hoover, Hughes & Co.,	328	36	10,359,194	2,184,309	848,145	7,007,338	962,750	2,588,200	167,720		Product of six mills.
John T. Fowler,	172	30				2,484,846	226,500	579,000			
Clarion County.											
A. G. Seigwarth,		35	50,000	5,000		4,000					Planing-mill.
Marvin Rulofson & Co.,	24	30	3,000,000				700,000				Saw-mill.
John Metzger & Co.,	8		20,000	150,000	20,000						
Wilson and Greenland,	22	25	750,000	600,000	100,000		500,000				70,000 feet square timber.
Hahn, Wagner & Curll,	58	40	3,000,000	250,000	50,000		300,000	300,000			
Porter Haskell & Son,	14	17	1,000,000	200,000			200,000				Saw-mill.
Clearfield County.											
Moshannon Land and Lumber Co.,	44	23	7,042,737	848,529	1,869	2,150	57,200	3,686,600			
D. K. Ramey & Co.,	56	50	4,462,605	1,443,984	230,675	62,422	354,100	1,061,000	123,180		
George Thorn,	8	39	220,000	80,000	5,000	3,000					
Clinton County.											
Kramer, Mann & Co.,	55	28	10,828,388	1,049,961	360	63,108		283,600	52,854		
Homewood Mill Company,	97	25	45,000	20,000				200,000			Saw-mill, (custom.)
Columbia County.											
T. H. Edgar,	6	52	200,000	30,000	5,000	55,000					Planing-mill.
Crawford County.											
Birch Bros.,			700,000	100,000	150,000	50,000					Bridge and railroad lumber, (by contract.)
McClure,			250,000		150,000						Manufactured for Birch Bros.
B. M. Sherwood & Son,	17	52	200,000	2,000,000	30,000	320,000		700,000			Shovel handles.
John Mallery,	4	7	3,119	3,968	25,338	11,113					
S. B. McGranahan,	11	52	300,000	100,000	800,000	50,000	1,000,000				
Bennett Bros.,	12	40	43,500	200,000	16,000	427,000					Planing and saw-mill.
A. D. & J. P. Williams & Co.,	7	44		50,000		180,832					Planing-mill.
E. W. Shippen,	7	3		60,000		300,000	6,000				550,000 bass wood broom handles.
Octave Stave and Barrel Company,	11	17								300,000	
George Dewey,				30,000	5,000	25,000	14,000				Custom work.
John Ward,	8		50,000	600,000	25,000	45,000					
Halsey Terrill,			1,000	50,000	5,000	6,000					

Brooks & Stanton,	7	25	100,000	20,000	150,000	61,000					
Charles L. Stitzer,	3	...	140,000	32,000	225,000	27,020	190,000				
Cumberland county.											
William Ziegler,	48	48	.....	.....	200,000	332,000					
Dauphin county.											
Weaver & Co.,	13	26	253,642	194,000	15,000	.....	489,000	35,000			
A. Douden,	10	50	500,000	100,000	.....	.....	250,000	300,000			
Elk county.											
G. T. Wheeler,	265	42	50,000	11,000,000	.....	2,400,000					
Fayette county.											
Irvin & Rutter,	6	44	148,339	108,880	7,156	4,000	186,000	82,000			
Forest county.											
T. D. Collins,	...	...	400,000	400,000	50,000	10,000	200,000	80,000			
Root & Watson,	17	20	2,100,000	200,000							
J. H. Derickson & Co.,	6	26	.....	.....	.. ...	.....	.....	.....	.....	1,000,000	Stave-mill.
Ford & Lacy,	98	52	.....	4,688,476							
Dickey, Darrah & Co.,	...	...	2,000,000								
Indiana county.											
James R. Dougherty,	7	48	200,000	40,000	10,000	32,000	.....	...	.....	.....	Sash, doors, frames, coffins, &c.
G. Y. Jones,	5	30	300,000	600,000	150,000	.....	500,000				
John S. Hastings,	9	52	600,000	1,000,000	25,000	20,000	125,000	60,000	.....	...	Planing-mill.
Lackawanna county.											
William B. Rockwell,	9	52	75,000	15,000	5,000	8,500					
Joshua Yost,	15	26	...	650,000	.....	150,000	100,000	200,000			
Hollister & Mitchell,	8	32	20,000	300,000	20,000	130,000					
W. Dale & Son,	34	50	.....	2,500,000	....	300,000	....	1,000,000			
W. K. Beck,	9	40	.....	1,000,000	.....	200,000	.....	200,000			
Daniel Baum,	17	52	.....	2,000,000	.....	300,000					
Abington Mill Company,	3	10	2,783	151,201	2,269	9,272					
Elias A. Smith & Sons,	...	12	11,000	31,336	52,530						
Wedeman Bros.,		20	.....	200,000	.....	10,000					
H. S. Montgomery,	4	12	....	300,000	.....	60,000	.....	.....	.....	.....	Saw-mill.
John P. Moore,	...	...	3,000	25,000	.....	2,000					
J. M. Rhodes,	29	40	100,000	2,000,000	50,000	750,000	500,000	500,000	.....	.....	Saw-mills—2 steam and 1 water.
Luzerne county.											
A. J. Hess,	...	...	50,000	20,000	.....	5,000					
Samuel V. Lee & Co.,	4	...	10,000	.....	.....	1,500	40,000	15,000	.....	.....	Planing-mill.
Lycoming county.											
Williams & Foresman,	8	52	7,367,000	675,000	.....	....	500,000				
Brown, Earley & Co.,	95	17	2,671,000	24,500	.....	5,004,500	.....	2,072,132			
F. Coleman,	65	20	13,392,226	854	2,345	13,491	.....	3,819,150	126,800		
G. W. Maynard & Co.,	64	20	11,614,447	....	.....	...	....	4,890,000			
H. M. & J. B. Otto,		...	2,474,769	.....	.....	..	.....	...	.....	....	By contract.
Payne & Co.,	99	24	12,000,000	.....	.....	600,000		6,000,000			

LUMBER—*Continued.*

BY WHOM OPERATED.	Number of persons employed.	Weeks in operation during the year.	White pine—feet.	Hemlock—feet.	Oak—feet.	Other lumber—feet.	Shingles—thousand.	Lath—thousand.	Pickets—thousand.	Staves and headings—thousand.	REMARKS.
Lycoming county.											
White, Leutz & White,	100	31	12,000,000	1,200,000				3,021,000	600,000		
Bowman, Foreman & Co.,	76	52	12,500,000	1,200,000	17,500			2,000,000			
Woolverton & Thaman,	63	26	6,576,000	400,000				3,800,000			
Jacob Edler,	9	38	150,000	20,000						588,120	
Bodine & Ward,	6	13	200,000	80,000		30,000					
D. Clapp & Co.,	28	7	300,320	117,122	27,810	24,671	807,100	131,000	17,960		Shingle-mill.
J. D. Buckman & Bro.,		13		100,000		10,000		400,000			Saw-mill.
Edward Dyson,		41	50,000	5,000,000				70,000			
Emery & Reading,	200	40	11,000,000	150,000		200,000		1,000,000			
Thomsen & Mengdner,	80	52					2,512,750				
Abel Dubois,	11	22									
	25	52	600,000	800,000							
Mifflin county.											
W. H. Keller & Sons,	5	40	25,000	15,000		12,000					
Monroe county.											
The Tobyhanna & Lehigh Lumber Company, Limited,	31	41		6,279,978		200,000		1,925,560			Planing-mill—sash, doors, &c.
Northumberland county.											
Cook & Paredee,	31	32	3,600,000	525,000	200,000	30,000	91,000	160,000			
D. Clinger,	10	45	105,000	55,000	2,500	11,500	85,000	40,000			
Potter county.											
George Crouch,	1	2	5,000	30,000		450,000	5,000,000				
Leonard Davis,	71	13	1,000,000	1,050,000	5,000	91,000					Report of five mills.
Beldin Bird,	15	28		50,000			15,000				
Lovell & Tanner,		8					300,000				
William J. Brown,	8	20	13,000	237,000	10,000	71,000	520,000				
T. J. Burnham,	3	12					725,000				
Snyder county.											
Hassinger, Walter & Co.,	11	31	6,000	1,200	800,000	2,000					

Sullivan county.												
Jonathan Rogers,		26		400,000		60,000						
Henry Williams,	37	52		3,000,000		125,000		50,000				
Richard Biddle,	1	52	20,000	300,000		40,000						
Lorch Bros.,	13	36	150,000			325,000						
Walter Spencer,	5	8		200,000		19,000						Steam saw-mill.
Warren county.												
Z. M. Jones,	2	25	100,000			25,000						Planing-mill.
Grandin Bros.,	15	40	800,000	175,000	100,000			275,000	ft. 10,000			
L. S. Hyde,	6	48					950,000					Shingle-mill.
Andrews & Hill,	10	12	800,000	500,000		3,000	450,000	450,000				Saw-mill.
Howard & Lindsay,		8	10,000	10,000		5,000						
Economy Oil Company,	8		196,395	125,000	27,512	15,210	50,250					
John Slater,	7	22	700,000		280,000							
L. T. Borchers & Co.,	28	32	200,000	1,500,000	50,000	450,000						Saw-mill.
E. Bennett & Son,	16	25	50,000	100,000	15,000	55,000						
J. S. & D. H. Donaldson,	3	26		225,000		20,000		75,000				
E. B. Hyde,	2	21	100,000	100,000		12,000	500,000					
Stewart & Smith,	7	24	1,000,000	350,000			500,000					Thirty thousand cubic feet square timber.
Benjamin & Hills,	6	32	100,000	600,000		50,000	20,000	40,000				Custom work, (mill burned Sept. 10, 1880.)
Green Clark,	2	40				300,000						Custom work.
Thomas Kay,		16	20,000	40,000	5,000	63,000						Custom work.
William Travis,	20	48	800,000	1,100,000	100,000	45,000	900,000	100,000				
Erastus Barnes,			5,000	5,000			30,000					Business resumed.
Wesley Milspau,	8	12	25,000	3,000,000		30,000						Steam saw-mill.
Orris Hall,	50	25	2,000,000	200,000								Thirty thousand cubic feet square timber.
John McNair & Co.,	23	26		1,500,000								
J. W. Agrellus,	13	44					500,000				1,200,000	Shingles, staves, and headings.
C. Chase,	1		25,000				400,000					
D. S. Prentice,	5	40					3,500					Shingle-mill, (contract work.)
S. Grosenburg, junior,	3	12		13,000		1,000						
Great National Petroleum Co.,			356,500					20,000				Saw-mill, (custom work.)
S. L. Birt,	5	40					950,000					Shingle-mill.
Morrison Bros.,	20	24	250,000	400,000	30,000	220,000		160,000				
F. & G. Bates,	7	10	100,000	200,000			400,000					
R. Stewart,	3	36	200,000	100,000	25,000	35,000	75,000				325,000	Lumber, shingles, and staves.
E. W. Ross & Son,	25	26	1,600,000	220,000			500,000	300,000				
C. A. Trisket,	5						700,000					Shingle-mill.
T. I. Baker,	3	15	100,000	50,000				30,000				
Gilbert Turner & Son,	7	34	50,000	1,250,000	5,000	330,000						
N. W. Dupree,	10	21		300,000		36,000	100,000	400,000				
Johnson & Eldred,	10	40	300,000	600,000		175,000	200,000					
Charles Lopus,	11	20	30,000	500,000	50,000	92,000						
M. B. Dunham,	59	12	1,000,000									Thirty thousand cubic feet square timber.
Billmeyer & Small Co.,	25	43				5,000,000						
H. Hazeltine & Son,	8	30	60,000	60,000	30,000	288,000						Saw-mill.
James Dunham,	13	17	50,000	100,000								
J. M. Wardwell,	10	35		800,000		50,000						

LUMBER—*Continued.*

BY WHOM OPERATED.	Number of persons employed.	Weeks in operation during the year.	White pine—feet.	Hemlock—feet.	Oak—feet.	Other lumber—feet.	Shingles—thousand.	Lath—thousand.	Pickets—thousand.	Staves and headings—thousand.	REMARKS.
Washington county.											
R. B. Davis,	5	35	.....	.....	683,000	35,000	.....	.....	.....	.....	Saw-mill.
York county.											
Isaac Frazer,	16	32	1,300,000	500,000	200,000	.....	300,000	250,000	.....	....	Lumber, lath, and shingles. Also have planing-mill, employing 18 to 20 hands, in the manufacturing of doors, sash blinds, &c.

RECAPITULATION.

Number of establishments to whom blanks were sent, ... 606
Number of establishments, ... 198

Number of persons employed, ... 3,980

Product.

White pine,	189,386,570 feet.	Boxes,	100,000
Hemlock,	94,793,572 "	Posts,	44,000 feet.
Oak,	12,809,090 "	Oak lath,	10,000 "
Other lumber,	33,502,908 "	Broom-handles,	560,000
Shingles,	33,706,652 m.	Square timber,	160,000 c. feet.
Lath,	48,414,182 "	Table legs,	1,000
Pickets,	1,3 9,549 "	Hemlock bark,	480 cords.
Staves and headings,	3,503,120 "		

TANNERIES.

A TABLE *showing production, etc., of the Tanneries of the State of Pennsylvania as reported for the year ended December 31, 1880.*

OPERATORS.	Number of persons employed.	Days in operation during the year.	Number sides of sole.	Number sides of harness.	Calf.	Other leather.	REMARKS.
Allegheny county.							
A. & J. Groetzinger,	50	308	62,000				Oak sole and belting leather.
Kiefer Stifel & Co.,	42	225		20,000			
Armstrong county.							
Christ Mardorf,	10	308		3,000			Harness, upper, etc.
Bedford county.							
A. L. Hench,	12	308	11,106				Oak slaughter sole.
Pritchett Bangh & Co.,	15	300	11,200				Slaughter sole.
J. B. Hoyt & Co.,	85	311	57,000				Sole and band.
Berks county.							
D. & H. Frantz,	1	300	800		300	150	Slaughter, upper, and calf.
Joseph Kammerer,	2	308				1,627	Slaughter, kips, and calf.
J. D. Sharadin,	7	310		3,000	1,400	1,600	Calf, kip, upper, and harness.
William Trexler,	4	300	2,000		500		Calf and slaughter.
Blair county.							
David Caldwell,	4	308	3,000				Rough slaughter.
William Smith,	8	311	7,600				Rough harness and sole.
Daniel P. Ray,	34	300	48,000				Union crop leather.
Bradford county.							
Adam Innes,	22		24,000				Union.
Adam Innes,	24		28,000				Union.
Bucks county.							
A. D. Atherholt,	3	308				7,070	Upper leather and calf skins.
Samuel K. Carl,	2	250				800	Upper leather and calf skins.
Cambria county.							
John J. Evans,	2	313	700		200	300	Sole, harness, calf, and sheep skins.
Cameron county.							
Hamilton Martin & Co.,	40	313	51,000				Sole leather.
B. F. Sherwood,	20		65,000				Hemlock sole leather.
Centre county.							
J. B. Hoyt & Co.,	40	313	68,000				Union crop sole leather.
C. Buch,	5		5,000				Sole leather.
Chester county.							
J. P. Wilkinson & Bro.,	6	311	3,000		1,500		Harness and belting and calf skins.
Clearfield county.							
John K. White,	33	300	36,000				Union crop sole leather.
Clinton county.							
Kisler Bros.,	80	240	64,000				Union tannage.
Columbia county.							
E. W. McCallum,	7	313					$4,000 upper, kip, calf, and harness.
E. B. Richie,	9	300				2,000	Oak butts for belting and fire hose.
A. Stander,				300	100		Harness, upper, and calf skins.
Crawford county.							
F. Schawweker,	12	313				8,500	Belting, skirting, and rough.
J. Boland,	6	308				7,500	Harness and rough leather.
Keystone Tanning Company, (Limited,)	5	310	9,360				Rough leather.

TANNERIES—*Continued.*

OPERATOR.	Number of persons employed.	Days in operation during the year.	Number sides of sole.	Number sides of harness.	Calf.	Other leather.	REMARKS.
Cumberland county.							
Samuel Rosenberger,	1			400	500		Harness leather and calf skins.
George Hench,	7	313	5,500				Spanish sole leather.
Elk county.							
W. H. Osterhout,	100	311	100,000				Sole leather.
Joseph Wilhelm,	5	308				4,800	Rough upper, harness, and calf.
Erie county.							
C. E. Gunnison & Co.,	17	300	7,000	3,000	1,200		Sole, rough, harness, and calf.
Bolard & Hayes,	8	310	6,500		3,700		Rough and finished.
J. E. Wells & Sons,	6	300	10,000				Hemlock rough leather.
Forest county.							
Brooks & Co.,	125	313	85,590				Hemlock sole leather.
Franklin county.							
Andrew Stiffel,	2	312	1,400		500	40	Rough slaughter, calf, and kips.
A. J. North,	7	300	600		200	3,000	Rough butts for belting.
William McLean,	10	313	6,000				Sole leather.
Greene county.							
Edward Stillwell,	2	200				500	Harness, upper, kips, and calf.
Huntingdon county.							
Leas, McVitty & Sons,	14	310					360,861 pounds oak sole.
Alvin D. Faust & Son,	27	313	25,000				Heavy rough and sole.
Lackawanna county.							
A. B. McKinstry,	47	300	40,000				Union crop sole leather, 550,000 pounds valued $165.000.
Hoyt Bros.,	70	300	80,000				Hemlock sole leather.
Theodore Schultz,	35	300	36,000				Union crop leather.
A. A. Eaton,	11	312	15,500				Union crop leather.
Lancaster county.							
George W. Miller,	3			1,000	300	3,000	Harness, rough, calf, and kips.
G. Grayinger,	12	308		5,000	3,600		Harness and calf.
J. H. Sticker, agent,	5	208				1,700	Harness, hose, belting, & upper.
Herman Miller,	5	313					$.0,000 harness, upper, kips, calf, and sheep skins.
D. S. Lichty,	4				500	1,200	Harness, upper, kip, and calf.
Lebanon county.							
J. & H. Loose,	6	300					$20,000 oak sole, upper, and calf.
David Buck,	3	156					$5,130 slaughter, upper, and calf.
Lehigh county.							
Mosser & Grim,	13	313	8,372				Union crop sole leather.
James Singmaster,	5	300					$14,000 slaughter, upper, and calf.
John E. Dubbs,	2	313	900		450		Harness, upper, and calf.
D. & J. Moser,	2	313				750	Harness, upper, and calf.
Peter & Moser,	3	313					$10,500 harness, upper, and calf.
Mosser & Keck,	41	313	60,000				Union crop slaughter sole.
C. Kachline,	3	313		800	250	330	Harness, upper, and calf.
Lycoming county.							
Charles Kelchner,							$3,000 slaughter and calf.
Russel & Casner,	4	308		2,600			Harness leather.
Mifflin county.							
Jacob Ellinger,	2	260	500		200		Rough, slaughter, and calf.
Monroe county.							
W. R. Bennett & Co.,	40	310					$100,000 goat pebble grain buff and split.
Stephen Kistler's Sons,	70	360	76,000				Union crops.
Day, Wilcox & Co.,	40	313	35,500				Union crops.
Day, Wilcox & Co.,	22	313	25,880				Union crops.
Wilson Kistler, (executor,)	20	300	24,420				Union crops.
S. Kistler's Sons,	20	313	25,000				Union crops.

TANNERIES—*Continued.*

OPERATORS.	Number of persons employed.	Days in operation during year.	Number sides of sole.	Number sides of harness.	Calf.	Other leather.	REMARKS.
Montgomery county.							
D. M. Casselberry,	4	300		1,000	4,000		Slaughter and calf.
William M. Schnelder & Son,	16	300			1,900	1,800	Harness, upper, and calf.
Montour county.							
James Woodride,	3	300		350	1,000	700	Harness, upper, calf, and kips; $7,650.
Northumberland county.							
Daniel Hetrick,	1	313					$2,000; harness, upper, and calf.
William G. Hoffman,	1	100			50	40	Upper and calf.
Perry county.							
C. A. Rippman,	6	310	6,000				Rough and sole leather.
W. C. Brown,	1	300	700	100	200	450	Rough, sole, harness, and upper.
Joseph Howell & Co.,	15	300					6,032 butts and 10,907 pieces of offal; value, $87,000.
John A. Bechtel & Son,	23	313	25,000				Oak sole leather.
Philadelphia county.							
William F. Forepaugh, Jr., & Bros.,	17	300					$50,000; belting and hose leather.
Keen & Coates,	24	311	20,000				Sole leather.
Charles B. Williams & Sons,	17	310	12,000				Sole leather.
Potter county.							
P. H. Castello,	50	300	50,000				Sole leather.
Schuylkill county.							
P. M. Barrow,	3	313					$10,000; harness, upper, calf, and kips.
Daniel Kistler,	2		500			100	Slaughter, calf, and kips.
D. Gensemer & Co.,	9	300	9,000				Oak sole leather.
Henry Miller,	5	308		6,000			Harness, kips, and calf.
Snyder county.							
Moyer & Brother,	3	300			144	200	1,500 pounds finished harness; 10,000 pounds rough slaughter.
Ulrich & Brother,	2	300					$2,500; rough slaughter and finished calf, kips, and upper.
Somerset county.							
Frederick Smith,	3						$800; harness, upper, calf, and kip.
Jonathan Miller,	3	300	80		400	1,200	Skirting, sole, upper, calf, and kip.
Abraham Musser,		300					$750; harness, upper, calf, and kip.
Sullivan county.							
D. T. Stevens & Son,	77		100,000				Hemlock sole.
Susquehanna county.							
J. G. Stiles,	2		2,500				Rough slaughter.
W. B. Gulle,	4	300				4,000	Upper leather.
J. Schlager & Co.,	12	300	20,000				Sole leather.
A. Corbin & Co.,	15	300	25,000				Hemlock sole leather.
W. H. Osterhout,	23	310	30,000				Hemlock sole leather.
George Fulmer,	35		30,000				Union crop leather.
Tioga county.							
Hoyt Brothers,	50	312	100,000				Sole leather.
Lowell & Co.,	40	300	60,000				Sole leather.
Schleffelin & Co.,	44	308	90,000				Sole leather.
R. Hammond & Co.,	34	300	60,000				Sole leather.
H. H. Crary & Co.,	54		75,000				Sole leather.
Veil & Krise,	4	313	5,000				Crop rough finished.
C. F. Margraff,	2	260				1,750	Harness and rough upper.
M. A. Durif,	3	300				4,200	Harness and upper.
H. H. Crary & Co., and F. Eberle & Bro.,	74	312	70,000				Sole and upper.
Joseph Cornelius,	20	313	20,000				Sole leather.
Union county.							
Harter Brothers,	4	313				1,200	Sole, harness, upper, and calf.

TANNERIES—*Continued.*

OPERATORS.	Number of persons employed.	Days in operation during year.	Number sides of sole.	Number sides of harness.	Calf.	Other leather.	REMARKS.
Warren county.							
Schoellkopt, Horton & Co.,	75	300	70,000				Sole leather.
White & Co.,	92	310					2,000,000 pounds hemlock sole leather.
Frederick Beck,	5	300	5,000			1,000	Rough leather and kips.
Horton, Crary & Co.,	121	300	200,000				Sole leather.
McConnell & Pyler,	16		13,012				Rough leather.
Washington county.							
John Birch,	2	300		600	200	50	Harness, skirting, upper, and kips.
John McElroy,	5	308		3,500			Harness leather.
Wayne county.							
L. H. Alden & Co.,	11	310	17,927				Sole leather.
Burton G. Morse,	35	140	20,000				Sole leather.
J. T. & W. Cromwell,	18	3 2	18,000				Union crop sole leather.
Wefferling, Brunig & Co.,	12	313	14,000				Sole leather.
Ira Nichols,	20	300	20,000				Hemlock sole leather.
Westmoreland county.							
B. E. Hebrank,		300					$2,000; harness leather.
James Douglas & Son,	5	313					$9,000; harness, upper, kip, and calf.
Jacob Lobinger,	3	200					$3,300; rough, upper, kip, and calf.
George Weltz,	3	300	1,000			200	Rough leather, kip, and calf.
Wyoming county.							
N. T. Childs & Co.,	30	312	30,000				Union crop.
G. W. Childs & Co.,	34	300	40,000				Union crop.
Smith Brothers,	8	300	2,6 0			25,000	Rus., sheep skin, and rough slaughter.
York county.							
Moses Strayer,	1	175		300			Harness, upper, kip, and calf.
Jacob G. Bortner,	3	307	1,800		200	600	Harness, upper, kip, calf, and sole.
L. Sultzback & Son,	3	306		1,000			Harness leather.
H. & W. Rebert,		300	1,800				Rough leather.
John M. Hableston,	11		8,000				Sole leather.
Henry Kerlinger,	2	313					$9,500; slaughter sole.
Baugher & Kurtz,	14	310	15,000				Slaughter sole.

RECAPITULATION.

Number of tanneries to whom blanks were sent,	515
Number of tanneries reported,	137
Number of employees,	2,643
Number of sides of sole leather,	2,530,347
Number of sides of harness leather,	51,900
Calf skins,	22,494
Other leather,	87,355
Value of product, (not otherwise specified,)	$381,130

MISCELLANEOUS INDUSTRIES.

AN EXHIBIT *of the production, number employed, &c., of various industries, compiled from returns of manufacturers to the Bureau, for the year ended December 31, 1880.*

NAME OF OPERATOR.	County.	Class of goods or articles manufactured.	Number of days in operation during the year.	Total number of persons employed.	Value of annual product.	Amount of articles manufactured.
Pennsylvania Drop Forging Company,	Allegheny,	Agricultural steel and iron work,	230	60		950 tons.
A. Speer & Sons,	Allegheny,	Agricultural steel and plows,	282	79	$150,000	
Eureka Mower Company,	Bradford,	Mowers,	260	39	50,000	
A. W. Plank,	Cumberland,	Plows, wagons, and grain-cradles,	275	2	3,725	300 plows, 75 grain-cradles.
Geiser Manufacturing Company,	Franklin,	The Geiser Grain Thresher, Peerless and domestic steam engines and boilers.	310	185	200,000	
Buch & Heisey,	Lancaster,	Farming implements,	313	11		30 tons.
S. S. Messinger's Sons,	Northampton,	Reapers, mowers, and rakes,	112	33		125 tons.
Job F. Pugh.	Philadelphia,	Auger and anger bits,	353	20		
Walter G. Wilson,	Philadelphia,	Biscuit and crackers,	313	116	305,000	
Joseph L. Amer & Co.,	Philadelphia,	Crackers, biscuit, cakes, and candies,	150	60	100,000	
J. B. Lippincott, & Co.,	Philadelphia,	Book manufacture, including book-binding and blank-book making.	310	325	400,000	
Standard Nut Company,	Allegheny,	Bolts, nuts, washers, and wire,	300	326		8,500 tons.
S. Severance,	Allegheny,	Boat, barge, and railroad spikes, boiler and tank rivets.	310	25	150,000	
George D. Roseberry,	Schuylkill,	Railroad and mining supplies, railroad spikes, washers, bolts, and nuts,	310	30	112,000	
Phillips Manufacturing Company,	Allegheny,	Boring machines,	200	3		1,046 machines.
George W. Neidich & Co.,	Cumberland,	Boots and shoes, ladies', misses', and children's,	280	60	55,000	
Shirley & Rommel,	Philadelphia,	Boots and shoes, men's, women's, and children's,	300	137	300,000	
Saller, Lewin & Co.,	Philadelphia,	Boots and shoes, men's, women's, and children's,	300	415	700,000	
James Dick,	Allegheny,	Brick, common,	160	3		200,000 brick.
J. R. Vaughn,	Blair,	Brick, common,	150	50		1,800,000 brick.
Johnstown Manufacturing Company,	Cambria,	Brick, common,	175	35	35,538	3,553,818 brick.
Andrew Stolz,	Crawford,	Brick, common,	111	17		955,000 brick.
Diener & Stuempfle,	Lycoming,	Brick, common,	120	14		700,000 brick.
Joseph J. Mahl,	Lycoming,	Brick, common,	140	16		650,000 brick.
James E. Dingee,	Philadelphia.	Brick, pressed, arch and pattern,	156	92		5,500,000 brick.
Amos Dotterer,	Philadelphia,	Brick of all kinds,	156	120		10,000,000 brick.
Peerless Brick Company,	Philadelphia,	Brick, plain, mould, and colored,	290	1	124,563	9,544,554 brick.

MISCELLANEOUS INDUSTRIES—*Continued.*

NAME OF OPERATOR.	County.	Class of goods or articles manufactured.	Number of days in operation during the year.	Total number of persons employed.	Value of annual product.	Amount of articles manufactured.
Young & Milnamou,	Philadelphia,	Brick,	182	82		5,500,000 brick.
Excelsior Brick and Stone Company,	Philadelphia,	Brick,	234	125		14,000,000 brick.
Harbison & Walker,	Allegheny,	Brick, fire,	314	113		6,114,786 fire-brick.
James H. Welch,	Allegheny,	Brick, fire, and fire clay,	260	13		510,000 fire-brick, 961 tons clay.
Pendleton, Brother & Co.,	Beaver,	Brick, tile and clay,	270	27		500,000 brick and tile, 1,000 tons fire-clay
S. Barnes & Co.,	Beaver,	Brick tile and furnace lining,	302	32		1,014,000 brick, 3,675 tile, 1,200 tons linings.
Clearfield Fire-Brick Company,	Clearfield,	Brick, tile, and furnace blocks, &c.,	305	65		2,500,000 brick, 8,000 English tile, 300 tons clay.
Harrisburg Fire-Brick Works,	Dauphin,	Brick, fire,	288	36	$60,000	
Joseph Soisson & Co.,	Fayette,	Brick, fire,	201	21		1,608,049 9-inch brick.
Joseph Downing,	Lehigh,	Brick, fire,	260	18		1,000,000 9-inch brick.
William J. Jacksou,	Centre,	Brick, fire,	300	75		Capacity, 16,000 per day.
Samuel Hatfield,	Huntingdon,	Fire clay,	234	7		2,200 tons fire-clay.
Keystone Bridge Company,	Allegheny,	Bridges, iron and steel, roofs, &c.,	313	410		9,136 tons of iron, 492 tons of steel.
C. J. Schnitz,	Allegheny,	Bridges and construction material,	293	123	135,177	
Townsend, Brown & Co.,	Allegheny,	Bridges and iron construction,	232	69	85,300	
Lang & Lauster,	Allegheny,	Brittanie tops and trimmings,	300	24	12,500	
Pennsylvania Canal Company,	Columbia,	Canal boats, building and repairing,	282	44	40,184	
Jackson & Woodin Manufacturing Co.,	Columbia,	Cars and car wheels,	308	724	2,141,021	
Harrisburg Car Works,	Dauphin,	Cars, railroad,	300	647	1,750,000	
Erie Car Works,	Erie,	Cars, freight,	300	451	1,346,882	
Lehigh Car Wheel and Axle Works,	Lehigh,	Cars, box, mine, coal, and freight,	270	265		1,500 cars.
Murray, Dougal & Co., (Limited,)	Northumberland,	Cars,	301	301		
William C. Allison & Co.,	Philadelphia,	Cars, freight, boiler flues, steam-pipe, oil well tubing, &c.,	310	856	3,000,000	
A. Whitney & Sons,	Philadelphia,	Car wheels,	303	189	503,000	
Jarvis & Adams,	Allegheny,	Castings, (small,)	292	53	89,000	
John Robson & Son,	Allegheny,	Chains, coke, and lime,	260	48	81,932	
Bradlee & Co.,	Philadelphia,	Chains,	308	50	40,000	
Chilled Car Wheels and Plow Manf. Co.,	Indiana,	Chilled car wheels and general castings,	313	8		400,000 pounds.
Frank Hause,	Schuylkill,	Cigars,	225	9		400,000 cigars.
Charles S. Haeseler,	Schuylkill,	Cigars,	250	8		350,000 cigars.
N. Wetzel,	Schuylkill,	Cigars,	300	17		725,300 cigars.
G. L. Boyd, Agent,	Schuylkill,	Coal screens,	200	2	6,000	

C. G. Hussey & Co.,	Allegheny,	Copper and brass, in rolls and sheets,	348	84	500,000	
Carbon Bronze Company, (Limited,)	Allegheny,	Carbon bronze, brass, and Babbitt's metal,	313	10	43,387	171,672 pounds.
Standard Oil Company,	Allegheny,	Barrels, (oil,)	308	436		174,000 barrels.
Allegheny County Work-House,	Allegheny,	Barrels, (oil,)	278	31		198,896 barrels, 106,943 kegs. 345 prisoners employed.
Arthur Parslow,	Allegheny,	Barrels, (slack,)	286	4	7,500	
J. R. Tygard,	Allegheny,	Nails, and packing kegs,	140	5		10,000 kegs.
Thomas Woods,	Erie,	Staves and headings,		10	15,000	700,000 staves, 300,000 headings.
Hussey & Co.,	Allegheny,	Crucibles, (plumbago,)	290	14	80,000	
Thomas Coffin & Co., (Limited,)	Allegheny,	Crucibles, (glass-house pots,)	312	80	100,000	
Robert Taylor & Co.,	Philadelphia,	Crucibles, (black lead,)	310	24	150,000	
Eagle Plumbago Company, (Limited,)	Philadelphia,	Crucibles, (plumbago,)	100	21		80 tons.
Bernard Sloekler,	Allegheny,	Cutlery, (butcher's tools,)	313	8	20,000	
Beaver Falls Cutlery Company,	Beaver.	Cutlery, (table and pocket,)	300	280	200,000	
Diamond Drill Works,	Schuylkill,	Drills, (diamond-pointed rock,)	308	20		
Thomas Weinmann,	Philadelphia,	Dye works,	303	6	15,000	
William Mills & Son,	Philadelphia,	Dye works,	290	50		
Charles Kitchenman,	Philadelphia,	Dye works,	274	13		
Frankford Dying, Bleaching, and Finishing Works.	Philadelphia,	Dye, bleaching, and finishing works,	300	60		1,000 tons of yarns, dyed & bleached, 6,000,000yds. of goods, dyed & fins'd.
Thomas J. Leekey,	Philadelphia,	Dye works,	208	19		
Richmond Dye and Print Works,	Philadelphia,	Dyed and printed cotton goods,	300	204		600,000 pieces, of 50 yards each, dyed and printed.
Andreas, Hartel & Co.,	Philadelphia,	Calico,	250	150		12,000,000 yards.
Isaac F. Bloodgood,	Lycoming,	Emery and sand-paper,	308	18	25,000	
Bauman & Co.,	Allegheny,	Engines, boilers, oil tanks, &c.,	290	10	4,100	
Delaware River Iron Ship Building and Engine Works,	Delaware,	Engines, boilers, and iron ships,	311	921	1,691,185	
Cole & Hellman,	Lehigh,	Engines and boilers,	310	85	89,000	
George W. Suyder,	Schuylkill,	Engines, boilers, pumps, and castings,	295	52		585 tons, gross.
Frick & Co.,	Franklin,	Engines, boilers, portable and stationary circular saw-mills, &c.,	312	230	430,473	
G. Freeborn & Son,	Allegheny,	Furniture and chairs,	300	14	20,000	
Renvers & Co.,	Allegheny,	Furniture,			14,245	
T. Roller, Agent,	Allegheny,	Furniture, parlor,	265	14		2 sets daily.
M. Seibert & Co.,	Allegheny,	Furniture, bedsteads, bureaus, &c.,	270	138	200,000	
George Rothemund,	Allegheny,	Furniture, chairs,	307		4,000	
Hall & Lyon,	Bradford,	Furniture and cabinet-ware,	300	62	77,000	
Hare & Co.,	Erie.	Furniture, plain,	300	65	45,000	
Philip Brown,	Huntingdon,	Furniture,	308	7	3,700	
E. A. Page & Brothers,	Lycoming.	Furniture and coffins,	300	3	6,000	
William J. Daub,	Northampton,	Furniture, cabinet,	308	6	5,000	
Allen & Brother,	Philadelphia,	Furniture, cabinet,	308	89		
James Boggs,	Philadelphia,	Furniture, windsor chairs and settees,	308	8		10,000.
J. Heisler,	Philadelphia,	Furniture, windsor chairs and settees,	300	5	3,000	
Young & Co.,	Philadelphia,	Furniture, windsor chairs,	308	10	8,886	
Eugene Huth,	Philadelphia,	Furniture, chairs and sofas,	280		2,000	
I. H. Wisler,	Philadelphia,	Furniture, cane, wood seat, and folding-chairs,	300	6		20,000 chairs.
L. Worrell,	Somerset,	Furniture,	229	4	3,460	
Chase & Pearsall,	Philadelphia,	Galvanized goods,	308	27		
McDaniel & Harvey Company,	Philadelphia,	Galvanized sheet-iron,	310	62		3,878 tons.
Philadelphia Galvanizing Company,	Philadelphia,	Galvanized iron,	300	55	125,000	
New York Slate Mantel House,	Allegheny,	Galvanized work and slate mantels,	300	5	15,000	

MISCELLANEOUS INDUSTRIES—*Continued.*

NAME OF OPERATOR.	County.	Class of goods or articles manufactured.	Number of days in operation during the year.	Total number of persons employed.	Value of annual product.	Amount of articles manufactured.
J. Bartles & Co.,	Lycoming,	Glue, soaps, neats-foot oil, etc.,	300	46	$100,000	
John Krider,	Philadelphia,	Guns and fishing-tackle,	310	7	3,000	
Edward K. Tryon & Co.,	Philadelphia,	Guns, fire-arms, etc.,	310	4	4,000	
Geo. W. Ache,	Allegheny,	Harness and saddles,	308	6	9,000	
Ernest Frey,	Allegheny,	Harness, saddles, and collars,	308	9	15,000	
Hartman & Kost,	Allegheny,	Harness,	308	3	5,000	
C. C. Hershey,	Allegheny,	Harness, saddles, and bridles,	310	4	2,000	
Henry Swift,	Allegheny,	Harness and saddles,	308	2	5,000	
Krome & Dunstrup,	Allegheny,	Harness and saddles,	300	4	6,000	
Chas. Williams' Sons,	Philadelphia,	Heaters, ranges, low grates, etc.,	300	21	35,000	
Reading Iron Works,	Berks,	Iron pipes, wrought iron, welded pipe and tubing,	275	677	. . . . .	19,962 tons.
James Hooven & Sons,	Montgomery,	Iron pipes, wrought,	229	31	147,507	
Reyburn, Hunter & Co.,	Philadelphia,	Lightning rods and fixtures,	234	74	325,000	
J. J. Gillespie & Co.,	Allegheny,	Looking glasses and frames,	313	8	30,000	
H. K. Porter & Co.,	Allegheny,	Locomotives,	308	184	. . . . .	51 locomotives, 291 tons of iron, 30,284 pounds of brass.
Lehigh Valley Railroad Company,	Schuylkill,	Locomotives and repairing,	308	167	. . . . .	5 locomotives, new.
Burnham, Parry, Williams & Co.,	Philadelphia,	Locomotives,	309	2,673		
Alexander Beggs,	Allegheny,	Marble, granite, and stone works,	308	46	52,000	
Boyle & Co.,	Allegheny,	Marble, and stone works,	270	9	8,000	
A. J. Harbaugh,	Allegheny,	Marble, granite, and stone works,	300	15	25,000	
W. C. Brown,	Allegheny,	Marble, granite, and stone works,	310	9	6,600	
Hummelstown Brown-stone Company,	Dauphin,	Building stone, flagging, and tile,	243	72	35,000	
Henderson Marble Company,	Montgomery,	Marble,	250	20	. . . . .	2,000 tons.
John Baird & Sons,	Philadelphia,	Marble, imported and sawed.	300	23		
Wm. Struthers & Sons,	Philadelphia,	Marble, granite, and sandstone,	. . .	401	. . . . .	200,000 cubic feet.
Samuel F. Prince,	Philadelphia,	Soapstone quarries,	. .	17	17,000	4,000 tons.
W. Tallesen Jones, agent,	Schuylkill,	Marble, granite, and brown stone,	308	7	7,000	
E. Channing Potts,	Montgomery,	Marble, flux stone, sand, etc.,	250	25	. . . . .	8,000 tons flux stone, 2,000 cubic feet marble, 1,200 tons loam sand, 375 tons fire-clay.
Ephraim K. Smith,	Philadelphia,	Matches,	300	24	41,140	
J. W. Eisenhart & Co.,	York,	Matches,	285	35	74,400	44,400 gross.
Wm. Amer & Co.,	Philadelphia,	Morocco,	313	55	92,964	
Chas. Bockius,	Philadelphia,	Morocco,	313	33	. . . . .	6,084 dozens.

Jacob Schoening & Son,	Philadelphia,	Morocco,	310	40		9,564 dozens.
William Smith,	Chester,	Needles, hosiery,	320	20		400,000 needles.
J. H. Luther,	Butler,	Oil well tools,	300	5		
Burdett Organ Company, (limited,)	Erie,	Organs, reed,	300	100		2,500 organs.
J. H. Reed,	Erie,	Organs, cabinet,	275	17		200 organs.
A. B. Felgemaker & Co.,	Erie,	Organs, church and portable pipe,	285	16		8 church and 15 portable pipe.
T. H. Neim & Co., (limited,)	Allegheny,	Paints and white lead,	250	27		500 tons.
Baymer, Bauman & Co.,	Allegheny,	Paints, white and red lead,	300	38	250,000	
V. H. Ehrhart, J. C. Thompson,	Allegheny,	Paint, iron,	300	8		600 tons.
Carbon Black Company,	Butler,	Paint, carbon black,	300	5		60,000 pounds.
Prince Manufacturing Company,	Carbon,	Paint, Prince's metallic,	260	60		3,000 tons.
Carbon Metallic Paint Company,	Carbon,	Paint, brown metallic,	235	58		3,109 tons.
Henry S. Reay,	Columbia,	Paints, dry and in oil,	100	2	6,722	
E. B. Cobaugh,	Dauphin,	Paints, dry and mixed,	90	5		20 tons dry; 1,000 gallons mixed.
Luzerne Ochre Manufacturing Company	Luzerne,	Paint, yellow ochre,	319	30		3,000 tons.
W. G. Elliott,	Lycoming,	Paint, asphaltum,	250	3	42,000	
French, Richards & Co.,	Philadelphia,	Paints,	308	42		4,553,157 pounds.
Harrison Brothers & Co.,	Philadelphia,	Paints, oil of vitroil and other aelds, white lead, colors, etc.,	308	24		1,550,000 pounds.
Western White Lead Company,	Philadelphia,	Paints, white and sugar lead, and wood aleohol,	308	60	250,000	
Pittsburgh White Lead and Oil Works,	Allegheny,	Paints, white and red lead, and linseed oil,	313	35		600 tons of white lead; 100 tons of paint; 200,000 gallons of linseed oil; 2,000 tons of oil cake.
The Allentown Manufacturing Company	Lehigh,	Paints, ready mixed, and bone fertilizer,	313	18		18,000 gallons of paint; 1,300 tons fertilizer.
Reading Paper Company,	Berks,	Paper, printing,	237	23		237 tons.
Morrison, Bare & Co.,	Blair,	Paper, printing and book,	104	80		400,000 pounds.
Morrison, Bare & Co.,	Blair,	Paper, printing,	250	70		2,900,000 pounds.
American Wood Paper Company,	Chester,	Paper and wood pulp.	289	141		4,404,675 pounds.
J. Fred. Sheeder,	Chester,	Paper, binders' and album boards,		10		215 tons.
W. & A. Mode,	Chester,	Paper, books and newspaper,	300	24		700,000 pounds.
H. S. Garrett,	Chester,	Paper,	300	8	16,500	
George Hosfeld,	Chester,	Paper, manilla,	300	6		150 tons.
Thomas French & Son,	Columbia,	Paper, manilla,		5	20,000	
W. A. & A. F. Mullin,	Cumberland,	Paper, printing,	280	33	75,000	390 tons.
Abraham Witmer,	Cumberland,	Paper, straw boards,	245	11		300 tons.
Shryock Brothers,	Cumberland,	Paper, straw and binders' board,	309	23		1,200,650 pounds.
Coehran & Young Brothers,	Erie,	Paper, printing and manilla,	309	17		275 tons.
Watson & Morgan,	Erie,	Paper, wrapping and binding,	267	22		935 tons.
William Heyser,	Franklin,	Paper, book and newspaper,	289	28		430,000 pounds.
Striekler, Lehman & Co.,	Franklin,	Paper, straw boards,	290	14		450 tons.
John W. Sutton,	Indiana,	Paper, straw boards,	250	12	20,000	
W. E. & E. D. Lockwood,	Philadelphia,	Paper, envelopes, tags, etc.,	308	112		
George W. Plumly & Son,	Philadelphia,	Paper, paper boxes,	308	327	139,000	
Novelty Paper Box Company,	Philadelphia,	Paper, paper boxes,	294	27	70,900	
Martin & William H. Nixon,	Philadelphia,	Paper, printing,	300	178		3,600 tons.
Howell & Brothers,	Philadelphia,	Paper, wall,	300	275	309,000	
American Fusee Company,	Erie,	Powder safety fusees,	250	15		20,800 cases.
Moosie Powder Company,	Lackawanna,	Powder, mining and blasting,	260	68	306,639	134,491 kegs.
Morgan Emanuel, junior,	Lawrence,	Powder, blasting,	275	4		15,000 kegs.
Laflin Powder Manufacturing Company,	Luzerne,	Powder, blasting,	260	14		64,540 kegs.
Miners' Supply Company,	Schuylkill,	Powder, miners' squibs for blasting,	286	54		1,100 cases.
H. A. Weldy & Co.,	Schuylkill,	Powder, blasting and regular,	270	49	203,905	
Sherman & Co.,	Philadelphia,	Printers,	300	150		

MISCELLANEOUS INDUSTRIES—*Continued.*

NAME OF OPERATOR.	County.	Class of Goods or Articles Manufactured.	Number of days in operation during the year.	Total number of persons employed.	Value of annual product.	Amount of Articles Manufactured.
Bailey, Farrell & Co.,	Allegheny,	Lead pipe, sheet, bar, and brass work,	300	75	$200,000	
Tatham & Brother,	Philadelphia,	Lead pipe and sheet lead,	310	21		3,710,000 pounds.
C. A. Blessing,	Philadelphia,	Bath-tubs, bath-boilers, plumbers and general coppersmith work,	308	45	125,000	
Wilson, Snyder & Co.,	Allegheny,	Pumps, valves, and fittings,	310	38	75,000	
Miller & Lloyd,	Allegheny,	Iron forgings,	309	50	96,000	
Keystone Axle Works,	Allegheny,	Wagon and carriage axles,	300	15		
Pittsburgh Forge and Iron Company,	Allegheny,	Car axles,	275	36		
Pittsburgh Forge and Iron Company,	Allegheny,	Bar iron, bolts, nuts, and axles,		41		
Park, Long & Co.,	Allegheny,	Heavy iron and steel forgings,	300	49	150,000	
R. B. Seidel,	Berks,	Bar iron and forgings,	251	7		116 tons.
Erie Forge Company,	Erie,	Car axles, engine cranks, shafting, etc.,	274	78		3,795,800 pounds.
William Renton,	Allegheny,	Repairing,	308	9		
A. C. Greth,	Berks,	Repairing,	313	8		
John Hoover,	Blair,	Repairing,	290	4		
Dale & Larkin,	Butler,	Repairing,	311	1		
Union Oil Company,	Butler,	Repairing,	300	2		
Humbolt Iron Works,	Erie,	Repairing,	313	10		
A. C. Welchans,	Lancaster,	Repairing,	313	18		
Lehigh Coal and Navigation Company,	Carbon,	Repairing,		247		
Henry Gerwig & Son,	Allegheny,	Ropes, twine, and cordage,	275	7	8,000	
John Flacker,	Allegheny,	Ropes, twine, and packings,	304	14		150 tons.
John T. Bailey,	Philadelphia,	Ropes, twine, bags, and cords,	313	380	800,000	
Finley & Schlichter,	Philadelphia,	Ropes, jute, and cordage,	313	190		3,850,355 pounds.
Pittsburgh Safe and Lock Company,	Allegheny,	Safes, machinery, and repairs,	307	6	6,416	
Conestoga Lock Works and Ezra F. Landis' shops.	Lancaster,	Lock, tire benders, and machinery generally,	300	10		7,000 to 8,000 fans—"Eclipse."
Farrel & Co.,	Philadelphia,	Safes, fire and burglar proof bank vaults, etc.,	313	38	50,000	
C. W. Taylor,	Allegheny,	Salt, dairy,	150	2		1,050 barrels.
Pennsylvania Salt Manufacturing Co.,	Allegheny,	Alum, acids, copperas, soda, etc.,	363	437		1,025 tons of alum, 1,106 tons of alumina, 3,224 tons of acids, 200 tons of copperas, 157 tons of C. callum, and 12,784 tons of soda.
Haller, Beck & Co.,	Allegheny,	Salt and bromine,	300	32		200,000 bushels of salt, 52,000 pounds of bromine.

J. Gamble & Son,	Armstrong,	Salt,	306	6		2,000 barrels.
S. J. Hickok,	Bradford,	Sash and doors, etc,	250	12		
Mosser, Shoop & Sadler,	Cumberland,	Sash, doors, frames, etc.,	300	40	35,000	
Miller & King,	Cumberland,	Sash, doors, frames, etc.,	280	8	12,000	
Cralghead & Freeland,	Cumberland,	Sash, doors, frames, etc.,	308	8	10,000	
Ridgway Planing-Mill Company,	Elk,	Sash, doors, frames, etc.,	300	8		
Bauschard & Son,	Erie,	Sash, doors, frames, etc.,	308	25	27,500	
W. H. Deming,	Erie,	Sash, doors, frames, etc.,	300	12	15,000	
H. D. Myers & Co.,	Erie,	Sash, doors, frames, etc.,	220	3	1,200	
Elmer Green,	Erie,	Sash, doors, frames, etc.,	250	6	3,000	
A. Mitchell,	Luzerne,	Sash, doors, frames, etc.,	300	3	3,000	
Lewis W. Drake,	Luzerne,	Sash, doors, frames, coffins, etc.,	3 9	32	58,271	
Thomas U. Thompson,	Lycoming,	Sash, doors, and dressed lumber,	280	50	65,000	4,500,000 feet raw material.
George Guest & Albert Longaker,	Montgomery,	Sash, doors, frames, etc.,	261	8	8,400	
Thomas H. Wentz,	Montgomery,	Sash, doors, frames, etc.,		46	85,456	
Parker & McPhillmay,	Philadelphia,	Sash, doors, frames, etc.,	300	28	36,000	
Mahlon Fulton,	Philadelphia,	Sash, doors, frames, etc.,	257	48	55,747	
D. Ross & Sons,	Somerset,	Sash, doors, frames, etc.,	275	4	1,000	
Shank & Walker,	Somerset,	Sash, doors, frames, etc.,	200	9	5,000	
Forsythe Scale Company,	Erie,	Scales, trucks, and copy presses,	150	29	15,000	
Richle Bros.,	Philadelphia,	Scales, trucks, and testing machines,	300	50	66,000	
Henry Troemner,	Philadelphia,	Scales and weights,	300	40	100,000	
Stow Flexible Shaft Company, Limited,	Philadelphia,	Shafts, (flexible,) and tools,	308	18	20,000	
American Button-Hole, Over-Seaming, and Sewing Machine Company.	Philadelphia,	Sewing machines,	300	330		
Grover Shoe Peg Company, Limited,	Bradford,	Shoe pegs,	250	19		30,000 bushels.
Thomas McNulty & Co.,	Allegheny,	Show cases,	308	13		1,400 cases.
W. H. Grove,	Philadelphia,	Show cases,	308	10	12,182	
James Irons,	Philadelphia,	Show cases,	308	9	13,966	
H. Adler,	Allegheny,	Sheet metal fenders,	2 0	8	8,000	
North Peach Bottom Slate Co. Works,	Lehigh,	Slate door sills, steps, etc.,	300	16	2,000	
Locke Slate Company,	Lehigh,	Slate roofing and flagging,	308	45	19,668	
James Hess & Co.,	Lehigh,	Slate roofing and school,	252	55	38,000	
Chapman Slate Company,	Northampton,	Slate roofing, fence posts, etc.,	297	158	107,984	
Chester County Slate Company,	Northampton,	Slate roofing, posts, and flagging,	250	30		3,690 squares.
Bangor Slate Company,	Northampton,	Slate roofing,	300	250		40,000 squares.
Chapman and New York Slate Mfg. Co.,	Northampton,	Slate roofing,	236	40	6,400	
North Bangor Slate Manufacturing Co.,	Northampton,	Slate roofing and school,		25		3,500 squares.
Empire Slate Works,	Philadelphia,	Slate mantels and raw slate work,	308	13	25,000	
Emil Henk,	Allegheny,	Stairs scroll work,	300	1	1,753	
Griffen, Smith & Co.,	Chester,	Stoneware and majolica,	300	100	69,000	
S. A. Jones,	Luzerne,	Stoneware.	310	8	20,000	
Pennsylvania Tack Works,	Montgomery,	Tacks, small nails, etc.,	250	50	100,000	
William Gee,	Luzerne,	Terra cotta sewer-pipes and chimney tops,	182	3	25,000	
Sylvester Gilinger & Bro.,	Montgomery,	Terra cotta ware,	288	5	4,888	
A. Scharff & Bro.,	Montgomery,	Terra cotta ware, chimney tops,	300	4	8,000	
Mrs. William Berner,	Schuylkill,	Terra cotta, earthenware and chimneys,		4	2,500	
Metcalf, Paul & Co.,	Allegheny,	Tools, railroad and stonemasons',	300	60		
Jacob Albey,	Allegheny,	Trunks, valises, and sample work,	312	4	6,000	
George B. Bains & Sons,	Philadelphia,	Trunks, bags, and satchels,	308	73	134,000	
Lewis Pelouze & Co.,	Philadelphia,	Type,	300	10		20,000 pounds.
Thomas W. Starr & Son,	Philadelphia,	Type and stamps,	300	6	5,000	
Wright Brothers & Co.,	Philadelphia,	Umbrellas and parasols,	3 8	414	730,000	

MISCELLANEOUS INDUSTRIES—*Continued.*

NAME OF OPERATOR.	County.	Class of Goods or Articles Manufactured.	Number of days in operation during the year.	Total number of persons employed.	Value of annual product.	Amount of Articles Manufactured.
D. Bournique,	Pike,	Watch cases—silver,	309	59	$115,000	21,400 cases.
Berthoud & Courvoursier,	Pike,	Watch cases—gold,	285	25	49,060	
Christ Rieger,	Allegheny,	Wire work,	313	4	4,000	
W. P. Townsend & Co.,	Beaver,	Wire and rivets,			150,000	
Stewart & Co.,	Northampton,	Wire, (iron, and steel,)	290	100		5,000 tons.
De Witt Wire Cloth Company,	Philadelphia,	Wire cloth,	300	10	10,000	
Albert L. Lanbenstein,	Schuylkill,	Wire screens and square rods,	301	8	16,794	
Prince C. Connell,	Allegheny,	Woodenware, patterns and models,	309		2,334	
Stewart & Atkins,	Crawford,	Woodenware, oars and sculls,	250	20		24,000 feet.
Shonts, Fetterman & Co.,	Crawford,	Woodenware, bowls,	200	3	3,000	
Howe, McClure & Co.,	Erie,	Woodenware, pails,	300	35	44,000	
A. B. Gunnison,	Erie,	Wooden pumps and pipe,	308	8		6,000 pumps.
J. V. Baldwin,	Erie,	Wooden handles for shovels and spades,	190	13		17,462 dozens.
Wyman & Parsons,	Erie,	Wooden handles for shovels and brooms,	250	8	4,797	
Roberts & Walter,	Fayette,	Wooden bowls,	200	3	2,000	40,000.
Standard Manufacturing Company,	Lycoming,	Wooden packing boxes and lap-boards,	220	21		600,000 feet lumber.
Jabez R. Hill,	Lycoming,	Wooden force pumps,		1		1,050.
T. B. Rice,	Philadelphia,	Wooden packing boxes and barrel bungs,	260	19	3,514	
Thomas W. Marsden,	Schuylkill,	Wooden cigar boxes,	308	4	1,500	
C. M. Crandall & Co.,	Susquehanna,	Wooden building blocks and toys,	280	85	60,000	
Warren Woodenware Company,	Warren,	Wooden tubs, pails, etc.,	260	50	50,000	
Girard Wrench Manufacturing Co., Lim.	Erie,	Wrenches, monkey,	248	75		267,710 wrenches.
Lehigh Zinc Works,	Northampton,	Zinc, oxide of, and spelter,	365	182		2,673,000 pounds oxide of zinc, 1,939,000 pounds spelter.

RECAPITULATION.

Number of establishments to whom blanks were sent,	839
Total number returned and tabulated,	289
Total number of persons employed,	22,716

TEXTILE FABRICS.

The rapid growth of the textile industries in the city of Philadelphia during the last decade has been a matter of much comment, and is a faithful exhibition of the enterprising spirit of our people. The assertion made at the meeting of the National Association of Wool Manufacturers, held in Philadelphia, November, 1878, that the carpet manufacture of that city would reach 20,000,000 yards, was received in a spirit of doubt, and was partly instrumental of inducing the manufacturers of the city in securing the services of Lorin Blodgett, Esq., to conduct an examination and compile statistics upon this important industry. The result of his inquiries demonstrated the fact that former estimates were below rather than above the actual product, which was equal to 34,000,000 yards, and that the rate from "January to May, 1880," indicated a production of not less than "35,000,000 of yards for a year." In his general review Mr. Blodgett says: "The general characteristics of the textile industries of this city and vicinity are derived from many sources, and, as finally blended, they possess peculiarities not found in any considerable degree elsewhere. Hand-looms and home weaving derived from Flemish and English migrations were the foundation, and as recently as about 1845 there were thousands of these looms at work in certain sections of the city on a great variety of fabrics in addition to carpets and hosiery. There are still about 4,000 hand-looms on carpets, with 1,500 on shawls, spreads, coverlets, etc., and with 1,200 or more on hand-knitting machines on the larger knit articles, cardigans, and fancy goods. In a large number of cases hand and power-looms are employed together, or by the same establishments, and all in the building of the proprietor, while in others the yarns are given out to the weaver, who returns the finished work. The whole system of employment is easy for those who are employed. The wages paid are comparatively high, and all the surroundings pleasant, and free from social disadvantages. The immense number employed in the aggregate is made up of one fourth or less of men, one fourth to one third boys or youths, and one half females ranging from twelve to twenty-five years of age. The earnings of the females range from four to fifteen dollars and even twenty dollars per week. Frequent instances of the higher sum earned occur in the hosiery industry which employs 15,000 persons in the aggregate, and pays probably the best wages. Each of the 4,000 hand-looms has a weaver, who must always be an adult in strength, and while the helpers are females, the number is much less except in the power-mills. In the silk and fancy goods manufacture about 5,000 persons are employed, three fourths being females and youths. The effect of this diversity, and especially of the extent of employment upon finished articles, cleanly in themselves, and put up in

tasteful forms, has been very favorable upon the mode of conducting the spinning and weaving-mills, and few or none of these are open to the objections once applying to them as degrading or unpleasant employments. As they are now, all the textile industries are extremely favorable to the personal comfort and social advancement of the persons employed, and exhibit a striking contrast with the conditions prevailing in crowded English or Continental manufacturing cities."

"In Philadelphia and its immediate business circle there are nearly a thousand mills on textile fabrics, employing more than 100,000 persons at wages, and producing $150,000,000 worth of woolen, worsted, cotton, and silk manufactures in a year, represented by the condition of the business since January 1, 1880. An approximately correct distribution of this production assigns to Philadelphia city proper $114,000,000 within the city, giving to Manayunk, $15,000,000; Germantown, $10,000,000; Falls of Schuylkill, $5,000,000; Frankford, $7,000,000; Kensington, $38,000,000; Fairmount, $5,000,000; West Philadelphia, $7,000,000; and to the central and southern portions, $25,000,000. As these districts are only nominally distinct, the limitations are not of especial value; but they may serve some useful purpose in grouping the more important establishments.

The following is an estimate of the quantity of wool consumed in the various classes of products:

Fine worsted yards, consuming	15,000,000	pounds of wool,	and producing	$10,000,000
Carpets, worsted, and wool, consuming	25,000,000	"	"	20,000,000
"Germantown wool," consuming	4,000,000	"	"	4,000,000
Clothing wools, consuming	25,000,000	"	"	20,000,000
Blanket and felting wools, consuming	10,000,000	"	"	5,000,000
Hosiery and knit goods, consuming	15,000,000	"	"	15,000,000
	94,000,000			$74,000,000

THE CARPET INDUSTRY.

The carpet industry of Philadelphia derived its origin from English manufacturing districts, and augmented by the immigration of English weavers and the importation of English machinery, which, however, has been greatly improved during the last twenty years.

A careful examination made in 1857 showed that there were 1500 hand-looms* then at work on carpets in Philadelphia, and two or three of the largest employers were preparing to use power looms, though no power looms were employed on carpets previous to that time in Philadelphia. The Jacquard loom or attachment also, then first introduced, as applied to carpet weaving, ingrains particularly, having been in all cases plain. Now almost all ingrain looms are fitted with the Jacquard attachment, and the patterns of even the cheapest carpets are very tasteful and even beautiful. In 1860, the census returned 124 establishments in Philadelphia manufac-

*These original hand-looms were wooden frames made by the workmen or by loom-makers, not machinists, in iron, and they were adapted to plain ingrain or damask weaving only, the ingrains and damasks being the best of their class.

turing ingrain, venetian, and Dutch wool carpets to the value of $2,915,618. In 1870, the census again gave 177 establishments, producing ingrain and venetian carpets valued at $9,736,347, the quantities in yards not being reported. The number of looms reported was 3,114, and estimating the production of these looms at three rolls of 120 yards each per month, which was the rate claimed to apply to 1857 and 1860, the production of 1870 would reach 13,450,000 yards, showing the value to have been about 70 cents the yard.

In 1876, another careful count of looms was made, showing 3,517 hand and 592 power looms at work, producing, as reported by the proprietors, a total of 21,630,425 yards of ingrain, venetian, and damask, and 1,270,400 yards of Brussels, tapestry Brussels, Wilton, and Axminster. This would be at the rate of three and a half rolls of 120 to 130 yards each for the hand looms, and four or more for the power looms, both of which estimates will allow something for short time. Since 1876, the number of power looms is doubled, and there is an increase of about 500 hand looms reported to be in actual operation. By actual count the number of hand looms in operation December 1, 1879, in 216 establishments was 4,012 on ingrain, venetian, and damask carpets, with 120 on Smyrna rugs, Axminsters and Moquets, with 200 more on carpets with wool chain and cloth or fringe filling. In addition to these, there are 900 power looms on ingrain and venetian carpets, with 446 on Brussels tapestry, Wilton, and velvet. A calculation of the present (December 1, 1879) production of carpets is as follows: 216 establishments, 4,132 hand looms, 2,756,400 yards monthly production, or 1,346 power looms, 33,076,800 yards for the year.

HOSIERY AND KNIT GOODS.

The production of hosiery and knit goods in Philadelphia are estimated at 12,625,000 dozen hosiery, 1,170,000 fancy woolens, and 360,000 dozen gloves.

THE TEXTILE INDUSTRIES OF PHILADELPHIA represent a larger aggregate of capital invested in manufacturing than any other distinct class, and they also represent a wider range of employment at wages than any other class. Taking the business interests necessarily associated with them in supplying raw materials, and in the sale of their products, their total value to the business community is many times greater than any other branch of manufactures, and their prosperity is felt more directly and reflected in a greater number of associated interests than the public generally understands. Their products enter directly into the necessary consumption of all classes, especially for cloths, both of wool and of cotton, and for the carpets, hosiery, etc., which are the leading products in Philadelphia, and they, therefore, felt more immediately the recent recovery from a long depression.

The simple statement that there are over six hundred establishments on textile fabrics, producing finished goods to the value of $90,000,000 for the year, and employing 100,000 persons at wages, is conclusive of the whole

subject, if proved to be correct, and it is the object of this report to give fully and fairly the detail of facts on which this statement is based. The number of persons employed is nearly equally distributed between men or adults, youths of less than adult strength, yet usually doing the work of men, and women or girls these last chiefly in the hosiery or fancy goods manufacture. The facilities offered in attendance on looms or knitting machines, and in other portions of the work where skill and vigilance rather than physical strength are required, greatly assist the extension of these industries, and in the practical diffusion of their benefits to a larger number of persons desiring employment. These facts are strikingly illustrated in the former suburbs but now portions of the consolidated city of Philadelphia, where these textile industries are most developed.

In Kensington alone there are not less than 200,000 persons supported by these industries, and the whole district is remarkable for the superior manner in which it is built up, and for the actual and evident wealth of its inhabitants; for the large number of proprietors, and of workmen who have become proprietors, and for the entire absence of the evils usually found or reported as being connected with factory industries. The social condition of the persons employed in the cotton and woolen-mills, the carpet mills, and the hosiery mills is very remarkable, and without a parallel in the history of similar industries or of those textile industries elsewhere. The superintendent of one of these mills, employing several hundred persons, informed a distinguished European visitor, in the presence of the writer, at the hour the people were leaving the mill, that every one of the adult persons employed, man or women, owned the house in which he lived or, if a woman, lived in a house owned by the family of which she was a member."

The following is a list of the power mills and machinery of textile fabrics in the city of Philadelphia, compiled from the report of Hon. LORIN BLODGET, 1880:

CARPET MANUFACTURERS, PHILADELPHIA.

NAME OF OPERATORS.	LOCATION.	POWER				LOOMS		YARDS PER MONTH	GOODS MANUFACTURED.
		Engines.	Horse-power.	*a* Wool cards. *b* Cotton cards.	*a* Wool spindles. *b* Worsted spindles. *c* Cotton spindles.	*a* Combs. *b* Chenille machines.	Hand.	Power.	
Robert Alexander & Son,	538 Ella street,						12		6,000	Ingrain.
David Alken,	William, below Amber street,						10		5,000	Ingrain.
Samuel Allen,	2333 Coral street,						8		4,000	Ingrain.
Robert Anderson,	Allegheny avenue and Trenton avenue,		1—10				29		15,000	Ingrain.
Robert Bainbridge,	2355 Emerald street,						4		1,500	Mats and Turkish rugs.
Thomas Baker,	566-8 Dickinson street,		1—10				4		2,000	Ingrains and hosiery.
Alexander Beck & Son,	1339 Cherry street,		1—45				45—26		40,000	Ingrain and damask.
Henry Benfer,	1326 Howard street,						6		3,000	Ingrain.
F. & C. Binz,	Orianna, below Cumberland,						16		8,000	Ingrain, cottage, and wool.
Erhard Biswanger,	515 East York street,						18		9,000	Ingrain.
Spencer C. Black,	1909 North Sixth street,						15		7,500	Ingrain.
John Boggs,	1511 North Front street,						30		15,000	Ingrain.
Boggs & White,	Front and Columbia avenue,		1—20				130		65,000	Ingrain.
James Bole,	2211 Hancock street,						45		22,000	Ingrain.
Robert Bole,	2775 Kensington avenue,						15		7,500	Ingrain.
Thomas Bole,	330 East Dauphin street,						6		3,000	Ingrain.
William Bole,	332 East Dauphin street,						3		1,500	Ingrain.
George Born,	569 East York street,						13		6,500	Ingrain.
Charles Boylan,	540 East Adams street,						8		4,000	All wool ingrains.
Thomas Boyland,	2442 Howard street,						11		5,500	Ingrain.
George Breitling,	2208 Front street,						12		6,000	All wool ingrains.
Bromley Brothers,	York and Jasper streets,		1—100	*a*4	*b*1,600		108—56		85,000	Ingrain, damask, and tapestry.
John Bromley & Sons,	York and Front streets,		3—200	*a*4	*a*1,600	*a*2	20—62		42,000	Ingrains.
					*b*820		104—20		25,000	Turkish and Smyrna.
									10,000	Brussels.
David A. Buchanan,	2120 Amber street,						4		2,000	Ingrain.
John Buchanan,	Trenton avenue, below Norris,						6		3,000	Ingrain.
Thomas Buckley,	Somerset and C streets,						10		5,000	Ingrain.
Samuel M. Burnett,	1728 Hope street,		1—15				50—15		35,000	Ingrain.
Thomas R. Burns,	2946 Rohrer street,						12		6,000	Ingrain.
Burns & Brother,	1715 Philip street,						15		15,000	Ingrain.

CARPET MANUFACTURERS—*Continued.*

NAME OF OPERATORS.	LOCATION.	POWER		a Wool cards. b Cotton cards.	a Wool spindles b Worsted spindles. c Cotton spindles.	a Combs. b Chenille machines.	LOOMS.		Yards per month.	GOODS MANUFACTURED.
		Engines.	Horse-power.				Hand.	Power.		
V. Butterfield,	Howard, above Berks,						4		2,000	Ingrain.
Cameron & Brother,	2229 Amber street,	1	15			b2	24	2	6,000	Axminster and Turkish.
James Campbell,	3001 Indiana avenue,						16		8,000	Ingrain.
John Campbell,	2863 Ruth street,						3		1,500	Ingrain.
William Carey,	1351 Hanover street,						8		4,000	Ingrain.
George Carson,	229-31 Taylor street,						18		9,000	Ingrain.
Robert Carson,	Huntingdon and Trenton avenues,	1	35				60	20	40,000	Ingrain.
Thomas Caves,	2018 Hope street,	1	8				50		25,000	Ingrain.
James Chestnut,	2272 Hope street,						3		1,500	Ingrain.
F. Clater,	2557 Ruth street,						4		2,000	Ingrain.
C. & J. Cochrane,	366 Riley street,						15		7,500	Ingrain.
J. Cochran,	Front and Otter streets,						18		9,000	Ingrain.
Robert Cochran,	2221 North Third street,						3		1,500	Ingrain.
James Corr,	Aurora,						4		2,000	Ingrain.
Charles Courduff,	Gransback and Cambria streets,						6		3,000	Ingrain.
William Coulter,	2304 Sepviva street,						6		3,000	Ingrain.
Alexander Crooks,	Tulip and Dauphin streets,						8		4,000	Ingrain.
John Cross,	1434 Savery street,						13		6,500	Ingrain.
William J. Crowe,	401 East Girard avenue,						3		1,500	Ingrain.
Alexander Crow & Son,	2212 Lynn street,	1	100				100	50	85,000	Ingrain.
								15	8,000	Brussels.
William Culbertson,	1131 Leopard street,						24		12,000	Ingrain.
N. Cunningham,	Richmond,						2		1,000	Ingrain.
William T. Cunningham & Son,	2411 Hope street,						12		6,000	Ingrain.
Daniel Currie,	1437 North Front street,						25		12,000	Ingrain.
Davis & Rath,	333-5 Ella street,						21		10,000	Ingrain.
Thomas Devlin,	611 East York street,						20		10,000	Ingrain.
Henry Dickel,	315 Ella street,						26		13,000	Ingrain.
William Dickson,	377 Sergeant street,						6		3,000	Ingrain.
John Deltz,	2210 North Front street,						0		4,500	Ingrain.
James Doak,	807 East Cumberland street,						18		9,000	Ingrain.
John Doerr,	430 East York street,						14		7 000	Ingrain and damask.
P. J. Doerr & Son,	1443 Lawrence street,	1	10				30	5	17,500	Ingrain and damask.

John & James Dobson,	Falls of Schuylkill,	5—800	a14	a6,000 b7,100	a14	20—100 —170	65,000 110,000	Ingrain. Tapestry brussels.
						— 40	24,000	Brussels and Wilton.
Dornan Bros. & Co.,	Oxford and Howard streets,	1— 60	a3	a900		16— 76	50,000	Ingrain and damask.
James Dougherty,	Elizabeth and Jasper streets,					8	4,000	Ingrain.
John P. Doyle,	2842 Kensington avenue,					4	2,000	Ingrain.
Hugh Dripps & Bro.,	2020 Holman street,					15	7,500	Ingrain.
R. & J. Dripps,	2345 Waterloo street,					16	8,000	Ingrain.
William Dunlap,	1520 Palethorp street,					56	17,500	Ingrain.
Oliver Dyner,	1947 Hope street,					11	5,000	Ingrain.
John Englekraut,	2337 Waterloo street,					3	1,500	Ingrain.
William Erskine,	(Plank road,) from 420 Otis street,					16	8,000	Ingrain.
James Finley,	337 Belgrade street,					10	5,000	Ingrain.
Jacob Fox,	2132 Hope street,					14	7,000	Ingrain.
Casper Fromuth,	2102 North Front street,					4	2,000	Ingrain and cottage.
William Forsyth,	2710 Boudinot street,					6	3,000	Ingrain.
James Galbraith & Bro.,	2028 Amber street,	1— 25				28— 10	28,000	Ingrain.
Josiah Galbraith,	411East York street,					16	8,000	Ingrain.
Robert Galbraith,	430 Ella street,					15	7,500	Ingrain.
Thomas Galbraith,	414 Otis street,					12	6,000	Ingrain.
John Gardner,	4505 Leiper street,					2	1,000	Ingrain.
James H. Gray,	Howard and Norris streets,	1— 35				45— 62	60,000	Ingrain and damask.
Gibb & Co.,	704 South Fifth street,					10	3,500	Chenille, Turkish, and chain.
James Gilmore,	2030 Hope street,					21	10,000	Venetian.
Andrew Given,	Tulip and Deal street,					2	1,000	Ingrain.
Robert Givens,	509 East York street,					18	9,000	All wool ingrains.
John & Matt Glenn,	551 Rainbow,					8	4,000	Ingrain.
Gustave Fordtran,	1311 Crease street,					10	4,500	Ingrain.
H. H. Gould,	2022 Holman street,					13	6,000	Ingrain.
David Graham,	2415 Emerald street,					25	12,000	Ingrain.
James Graham,	Dickinson near Trenton avenue,					28	13,000	Ingrain.
John Graham,	623 East Adams street,					12	6,000	Ingrain.
John P. Graham,	614 Emlon street,					16	8,000	Ingrain.
Joseph Graham,	K and Venango street,					7	3,500	Ingrain.
Samuel Gray,	329 North Thirteenth street,					14	7,000	Ingrain.
William J. Green,	808 East Adams street,					10	5,000	Damask and venetian.
John Hamilton,	1732-6 Leib street,	1— 10				56	27,000	Ingrain.
Joseph Hamilton,	2929 E street,					6	3,000	Ingrain.
Harpst, Montague & Co.,	Howard and Berks streets,	1— 40				— 10	7,000	Ingrain and damask.
Joseph Hastings,	2313 Palethrop street,					8	4,000	Ingrain.
L. Heiser,	1232 Leopard street,					10	5,000	Ingrain.
E. Highland,	Indiana and E streets,					12	6,000	Ingrain.
Thomas Hirst,	Bridge street, (Bridesburg,)	1— 20				— 19	7,000	Turkish rugs and mats.
James Hogg,	1409 Savery street,					28	8,000	Ingrain.
William Hogg, junior, & Sons,	Oxford near Hancock street,	1— 30				80— 4	42,000	Ingrain and damask.
						— 20	8,000	Body brussels.
William James Hogg & Co.,	1711 Randolph street,	1— 25				— 12	4,600	Body brussels.
A. Holmes,	1947 Trenton avenue,					19	9,000	Ingrain and damask.
Henry Holmes,	169 Jefferson street,	1— 20				19— 10	15,000	Stair damask.
Horner Bros,	1621 North Second street,	2— 60				85— 40	40,000	Stair damask.
Horner Bros.,	Hancock and Putnam street,	1—100					25,000	Brussels.
Robert Howard,	2527 Filmore street,					4	2,000	Ingrain.
William Hunter & Son,	713-19 Dickinson street,	1— 8				40— 7	24,000	Ingrain and damask.

CARPET MANUFACTURERS—*Continued.*

NAME OF OPERATORS.	LOCATION.	POWER. Engines.	POWER. Horse-power.	*a* Wool cards. *b* Cotton cards.	*a* Wool spindles. *b* Worsted spindles. *c* Cotton spindles.	*a* Combs. *b* Chenille machine.	LOOMS. Hand.	LOOMS. Power.	Yards per month.	GOODS MANUFACTURED.
Robert Huston,	Trenton avenue and Dauphin street,	1	15	....	....	....	53	16	37,000	Ingrain and damask.
Henry Ingham,	2318 Tulip street,	....	....	....	....	....	2	....	1,000	Ingrain.
Ivins, Deltz & Magee,	Columbia avenue and Howard street,	1	50	....	....	....	125	25	90,000	Ingrain, tapestry, and stair damask.
David Jackson,	Davis near Howard street,	....	....	....	....	....	35	....	17,500	Ingrain.
William Jamison,	2839 C street,	....	....	....	....	....	8	....	4,000	Ingrain.
A. S. Jennings & Son,	Kensington and York streets,	1	8	....	....	....	25	....	12,000	Ingrain.
James Johnson,	2862 Ruth street,	....	....	....	....	....	4	....	2,000	Ingrain.
Judge Bros.,	Front and Columbia avenue,	1	30	....	....	....	120	50	90,000	Ingrain, stair and damask.
S. Keightly,	421 East York street,	....	....	....	....	....	12	....	5,500	Ingrain.
Edmund Kay,	2811 Amber street,	....	....	....	....	....	14	....	6,500	Ingrain.
Michael Kelly,	1941 Howard street,	....	....	....	....	....	2	....	1,000	Ingrain.
Hugh S. Kerr,	1940 Hope street,	....	....	....	....	....	10	....	5,000	Ingrain.
J. Kelso,	1611 Deal street,	....	....	....	....	....	5	....	2,500	Ingrain.
William Kelso,	520 East Dauphin street,	....	....	....	....	....	15	....	7,000	Ingrain.
James Killen,	2530 Hancock street,	....	....	....	....	....	2	....	1,000	Ingrain.
James King,	Indiana and E street,	....	....	....	....	....	4	....	2,000	Ingrain.
James Kitchenman,	Huntingdon and Dauphin streets,	1	150	*a*4	*a*1,690 *b*794	*a*2	60	34	50,000	Ingrain and damask.
Charles Krause,	567 Adams street,	....	....	....	....	....	....	....	....	....
Julius Kuntze,	718 Otis street,	....	....	....	....	....	40	....	20,000	Ingrain and venetian.
William Latham,	2641 Hope street,	....	....	....	....	....	11	....	.....	Ingrain.
Thomas L. Leedom & Co.,	2419 Howard street,	1	45	....	....	....	4	....	....	Ingrain.
Lewis Leltenberger,	1720 Hope street,	....	....	....	....	....	125	64	95,000	Ingrain and damask.
Isaac Lockhart,	327 Ella street,	....	....	....	....	....	....	14	9,000	Body brussels.
William Lockhart,	324 Otis street,	....	....	....	....	....	2	....	1,000	Ingrain.
McCallum, Crease & Sloan,	Glen Echo Mills, Germantown,	1	200	*a*17	*a*6,800 *b*1,152	*a*7	7	....	3,000	Ingrain.
Daniel McCarroll,	129 Taylor street,	....	....	....	....	....	6	....	2,500	Ingrain.
Moses McConnell,	2219 Amber street,	....	....	....	....	....	25	50	45,000	Ingrain, damask, and venetian.
Michael McCooley,	312 Sergeant street,	....	....	....	....	....	....	11	6,500	Body brussels.
David McCracken,	2216 Bodine street,	....	....	....	....	....	12	....	6,000	Ingrain.
James McCracken,	811 East Cumberland street,	....	....	....	....	....	2	....	1,000	Ingrain.
John McCracken,	1719 Howard street,	....	....	....	....	....	6	....	3,000	Ingrain.
Thomas McCracken & Son,	Seventeenth and York streets,	....	....	....	....	....	6	....	3,000	Ingrain.
		1	20	....	....	....	26	....	12,000	Ingrain.
							16	....	8,000	Ingrain.
							30	10	21,000	Ingrain.

James McDade & Son,	2339-41 Hope street,	1— 10				24— 6	15,000	Ingrain.
Samson McDowell,	532 Dickinson street,	1— 25				54— 10	37,500	Ingrain.
P. McElhone,	806 Otis street,					6	3,000	Ingrain.
Robert McFarland,	2412 Howard street,					7	3,500	Ingrain.
William McFarland,	2451 Howard street,					6	3,000	Ingrain.
John McGarry,	1527 Stiles street,					4	1,500	Ingrain.
W. & J. McHatton,	1930 North Front street,					18	8,000	Ingrain.
George McHugh,	330 East Dauphin street,					3	1,000	Ingrain.
James & Robert McKinney,	332 East Dauphin street,					8	3,000	Ingrain.
A. McMichael,	939 East Adams street,					8	3,500	Ingrain.
William McNeill,	2710 Boudinot street,					8	3,500	Ingrain.
James Martin,	408 East Dauphin street,					35	15,000	Ingrain.
James Mawhinney,	2933 E street,					3	1,500	Ingrain.
Thomas Mawhirter,	535 East York street,					12	5,500	Ingrain.
John J. Menagh,	2936 E street,					3	1,500	Ingrain.
John Miskell,	Sepviva and Venango streets,					6	3,000	Ingrain.
Alexander Mitchell,	2208 Amber street,					8	4,000	Ingrain.
William Montgomery,	Gransback and Indiana avenue,					16	7,500	Ingrain.
Moore & Brother,	York and Sepviva streets,					20	8,500	Ingrain.
David Morgan,	241 Master street,					17	7,500	Ingrain.
John Morgan,	719 Emlen street,					10	5,000	Ingrain.
John Motz,	William and Amber streets,					4	2,000	Ingrain.
John Mulholland,	2104 North Front street,					4	1,800	Ingrain.
James Neely, junior,	335 East Dauphin street,					10	4,500	Ingrain.
M. Neely,	515 Otis street,					25	10,000	Ingrain.
Hugh Nelson,	1716 Hope street,					16	7,000	Ingrain.
James Nesbit,	2251 Frankford road,					6	2,700	Ingrain.
Robert Nicholson,	310 East Sergeant street,					3	1,200	Ingrain.
Samuel Patterson,	335 Firth street,					6	2,500	Ingrain.
Patton & Krisher,	Trenton avenue and Otis street,					55	23,000	Ingrain.
Robert Paul,	Eleventh and Catharine streets,					5½	2,500	Ingrain.
Job Pearson,	Trenton avenue and Adams street,	1— 15			64	15— 6	7,000	Turkey and Smyrna rugs.
Herman Petzoldt,	2014 Frankford road,					9	3,700	Cottage and chain.
Andrew Pierey,	606 East York street,					3	1,400	Ingrain.
James Pollock & Son,	625 East Dauphin street,	1— 25				36— 40	44,000	Ingrain and damask.
John W. Priestley,	Davis near Howard streets,	1— 5				10— 5	4,500	Smyrna and chenille rugs.
John W. Priestley,	Sixth and Susquehanna avenue,	1— 20			62	10— 28	16,000	Smyrna and chenille rugs, Axminsters.
Edward C. Read,	2141 Hope street,					22	10,000	Ingrain.
Alfred Redfearn,	Hazard above Jasper streets,	1— 10				10— 10	9,000	Ingrain.
August Rinke,	2135 Hope street,					6	3,000	Ingrain.
S. C. Ridpath & Co.,	1242 Day street,					55	25,000	Ingrain.
Moses Ridpath,	607 Dickinson street,					16	8,000	Ingrain.
Robert Rogers,	2704 Boudinot street,					7	3,300	Ingrain.
Ross & Getty,	913 East Huntingdon street,	1— 10				20— 10	15,000	Ingrain.
Thomas E. Rowbotham,	2233 Amber street,					22	10,000	Ingrain.
Jacob Schumacher,	520 East Dauphin street,					16	7,000	Ingrain.
John Shaw,	2943 E street,					3	1,400	Ingrain.
L. Sickinger,	1208 Day street,					11	5,000	Ingrain.
John Shegog,	1925 Hope street,					24	11,000	Ingrain.
John Smith,	2335 Howard street,					25	11,000	Ingrain.
John G. Sonneborn,	2131-3 Hope street,					23	10,000	Ingrain.
William Spear,	2442 Howard street,					11	4,500	Ingrain.

CARPET MANUFACTURERS—*Continued.*

NAME OF OPERATOR.	LOCATION.	POWER.		LOOMS.		YARDS PER MONTH.	GOODS MANUFACTURED.
		Engines. Horse-power.	*a* Wool cards. *b* Cotton cards.	*a* Wool spindles. *b* Worsted spindles. *c* Cotton spindles.	*a* Combs *b* Chenille machines.	Hand. Power.		
Thomas Spence & Co.,	2031 Hancock street,					10	4,500	Ingrain.
Robert Stead,	Cambria and Indiana avenue,					2	900	Ingrain.
Andrew Stevenson,	2763 Kensington avenue,					16	7,500	All wool ingrain.
John Stewart & Son,	Waterloo and Frankford road,					16	7,500	Ingrain and stair damask.
William Stewart's Sons,	2413 Howard street,	1— 10				57	26,000	Ingrain and damask.
Stinson Brothers,	1726 Howard street,	1— 20				60— 7	3,000	Ingrain.
Solomon Stradley,	1613 Deal street,					5	2,200	Ingrain.
Louis Stremel,	507 Charter street,					16	7,500	Ingrain.
Charles Stradley,	Trenton avenue and Otis street,					14	6,000	Ingrain.
Joseph Taylor,	Montgomery avenue and Howard street,	1— 60				25— 25	25,000	Ingrain and damask.
Thomas Taylor,	2020-8 Hope street,	1— 25				40— 25	34,000	Ingrain.
Adam Thompson,	2927 E street,					7	3,000	Ingrain.
Samuel Totten,	309 Hazard street,					2	1,000	Ingrain.
George Treude,	526 Charter street,					12	5,500	Ingrain.
John Watt,	Sergeant street,					5	2,200	Ingrain.
J. Watt & Brother,	2239 Holman street,					6	2,600	Ingrain.
Warner Weiland,	Kensington avenue,	1— 6				6	3,000	Ingrain.
William Whitaker & Sons,	Adams street, Frankford,	1—150	*b*25	*b*950 *c*8,000	*a*2	14— 40	30,000	Ingrain and damask.
John Wilson,	2031 Hancock street,					4	2,000	Ingrain.
James Winchester & Son,	2316 North Front street,					16	7,000	Ingrain.
John Winchester & Son,	2336 North Front street,					16	1,500	Ingrain.

COTTON MANUFACTURERS, PHILADELPHIA.

Name of Operators.	Location.	Power. Engines. a Horse power. b Water.	a Wool cards. b Cotton cards.	a Wool spindles. b Cott'n spindles. c Flax spindles.	a Self actors b Quilting machine. c Down machine d Power sewing machine.	Looms. a Jacquard looms. b Hand c Broad.	Goods Manufactured.
Joseph Adamson & Co.,	Germantown road and Columbia avenue,	1—*a* 50	. . . .	. . .	. . .	200	Braids, bindings, and elastic goods.
E. B. Andrews,	Twenty-fifth and Callowhill streets,	*a* 20	. . . .	. . . .	. . . .	50	Turkish towels, cottonades, &c.
Aramingo Mills, (Ross, C., & Co., Baltimore.)	Frankford.	1—*a* 60	. . .	. . . .	. . . .	*a*158	Ginghams, plaids, and table covers.
Atkinson & Foulds,	Twenty-fourth, above Green street,	1—*a* 50	. .	. . .	. . .	100	Dress goods, table cloths, &c.
A. Backer & Co.,	Manayunk,	1—*a*150	*b*20	*b*1,000	. . .	146	Ginghams, check, and colored cottons.
John T. Bailey & Co.,	Otsego, near Tasker,	4—*a*575	. . . .	*c*500	*d*40	40	Linen jute and cotton twine, &c.
William Beatty,	Northwest corner Coral and Adams sts.,	. . .	. . . .	. .	. . . . .	62	Flannels, check, and ginghams.
Beswick & Kershaw,	Twenty-fifth and Callowhill streets,	1—*a* 20	. . . .	. . . .	. . . . .	*a*30	Fancy dress goods.
Bradbury & Pollock,	Frankford,	1—*a* 20	. . .	. .	. . . . .	40	Cotton damasks.
Briggs & Co.,	Frankford.	2—*a*106	*a*4	*a*1,300	. . . .	50	Checks, ginghams, and cottonades.
James Brison & Co.,	800 South Eleventh street,	*a* 20	. .	. . . .	. . . .	50	Checks and ginghams.
Callaghan Brothers & Co.,	Angora, West Philadelphia,	1—*a*300	*a*12	*a*5,750	*a*5	550	Cotton cassimeres and cottonades.
		1—*a* 20	*b*81	*b*12,914			
The A. Campbell Manufacturing Company,	Manayunk,	2—*a*150	*b*52	*b*9,000	. . . . .	128	
		1—*a*450 *b*500	*b*108	*b*18,000	. . . .	725	Ginghams, stripes, shirtings, &c.
John G. Carruth,	Kensington and Huntingdon,	*a* 20	. . . . .	. . .	. . .	82	Checks, cheviots, and cottonades.
S. Clarke & Co.,	Adams and Amber,	*a* 15	. . . .		. . . . .	76	Cotton checks and linseys.
Joseph Clegg's Sons,	Manayunk,	1—*a* 30	*a*2	*a*800	. . .	40	Cottonades.
James Connolly & Sons,	Twenty-first and Ellsworth streets.	*a* 30	. . . .	. . . .	. . .	120	Checks and ginghams.
Henry Dale's Sons,	Gillingham st., near Church, Frankford,	1—*a* 25	. . . .	. . .	. . . .	28	Turkish towels, reps, and terry.
John Dallas' Sons,	Kensington and Huntingdon streets,	1—*a*100	. . . .	. . . .	.	120	Cottonades, osnaburgs, &c.
Emlen & Co.,	Haddington, West Philadelphia,	1—*a* 45 *b* 20	. . . .	. . .	. . . . .	100	Cotton cheviots and dress goods.
Finley & Schlichter,	Trenton and Erie avenues,	1—*a*150	*b*10	*b*1,000	. . . .	26	Rope machines, cotton, flax, and hemp twine, and cordage.
E. H. Fitler & Co.,	Tenth and Germantown road,	1—*a*150	. .		. . .	. . . . .	Cotton, flax, hemp twine, &c.
Garsed & Co.,	Frankford,	1—*a* 35	*b*12	*b*3,600	. . .	130	Ticks, plaids, and checks.
Matthias Gorgas,	Wissahickon,	*b* 20	*b*10	. .	. . .	. . .	Cotton batting and rolls.
R. Granices' Sons,	Sixteenth and Fitzwater.	1—*a* 35	. . . .	. . . .	. . . .	200	Flannels, linseys, cotton checks, &c.
B. W. Greer & Hetzel,	Twenty-first and Ellsworth street,	1—*a* 20	. . . .	. . . .	. . . .	52	Cotton and woolen goods; chiefly cotton.
L. C. Harnel,	2127 Hope street,	1—*a* 6	. . . . .	. . . .	. . . .	*a*9	Coverlets and quilts.

COTTON MANUFACTURES—*Continued.*

NAME OF OPERATORS.	LOCATION.	POWER. Engines. *a* Horse-power. *b* Water.	*a* Wool cards. *b* Cotton cards.	*a* Wool spindles. *b* Cotton spindles. *c* Flax spindles.	*a* Self actors. *b* Quilting machine. *c* Down machine. *d* Power sewing machine.	LOOMS. *a* Jacquard looms. *b* Hand. *c* Broad.	GOODS MANUFACTURED.
James J. Hanson,	Eleventh and Catharine,	1—*a* 10				*a*18	Cotton dress goods.
Edward Heald,	Twenty-fifth and Callowhill streets,	1—*a* 80				*a*236	Skirtings, flannels, and ginghams.
Hurst & Taylor,	Church lane, Germantown,	1—*a* 10	*b*4				Cotton laps and wadding.
Industry Down Quilting Company	1038 Ridge avenue,	*a* 10			*b*15 *c*30		Silk and chintz quilts.
James W. Kerr,	Huntingdon, below Kensington,	1—*a* 80				76	Cotton cheviots.
George Kumpf,	329 East York street,	1—*a* 10				*a*14	Coverlets and shawls.
Henry Landless & Son,	800 South Eleventh street,	*a* 8				10	Cotton cheviots and dress goods.
Henry Lawrence,	Tenth, above Columbia avenue,	1—*a* 60		*c*660		40	Flax and jute goods, sacking, &c.
James Lee & Co.,	Manayunk,	*a* 30				150	Checks and ginghams.
August Lessig,	1911 North Sixth street,	1—*a* 10				*b*16	Coverlets.
James Long, Brother & Co.,	1541 North Second street,	1—*a*120				385	Cotton ginghams, checks, &c.
McGrath, Keegan & Co.,	Kensington avenue and Huntingdon st.,	*a* 20				70	Cotton checks and ginghams.
Samuel McPherson,	1758 Howard street,	1—*a* 10				*a*25	Shawls and coverlets.
Robert Mair & Son,	Adams and Amber streets,	1—*a* 80				115	Cotton cheviots.
John Martin,	Otis, below Amber street,	1—*a* 10				15	Spreads and turkish towels.
J. Mellor,	2487 Amber street,	*a* 15	*a*1, *b*3				Cotton laps and wool rools.
Thomas Mellor,	Ridge avenue,						Cotton laps.
James P. Murray,	175 Columbia avenue,					16	Coverlets and quilts.
John B. Nelson,	2329 Callowhill street,	1—*a* 60				200	Cottonades, cassimeres, &c.
James Nugent,	Frankford,	20				40	Colored cottons.
Ogden Brothers,	Seventy-third and Woodland avenue,	1— 50	*a*4	*a*1,600		80	Cottonades and jeans.
Robert Patterson & Co.,	Manayunk,	*b*500 5—*a*900	*b*18	*b*22,000		800	Ginghams, checks, and dress goods.
Reese, Williamson & Co.,	Third and Lehigh avenue,	*a* 20				46	Dress goods.
John Rothwell & Son,	Lehigh avenue and Howard street,	1—*a* 45				32	Turkish towels, cotton.
Frederick Rumpf & Bro.,	601 East Fox street,	1—*a* 10				*a*40	Coverlets and quilts.
John Scanlin & Sons,	105 Columbia avenue,	*a* 20				120	Linseys, ginghams, and cottonades.
George F. Schmidt,	1422 Franklin street,	*a* 10				*a*15	Coverlets and quilts.
John Sidebotham,	Franklin, below Church, Frankford,	1—*a* 80				40	Cotton tapes, elastic goods, &c.
James Smythe,	Nineteenth and Pine streets,	1—*a*150	*b*30	*b*9,000		308	Ginghams, (all cotton.)
Stewart Brothers,	Twenty-first and Alter streets,	1—*a* 60				102	Cotton cheviots and ginghams.
Stewart Brothers,	Twenty-fifth and Callowhill streets,	*a* 30				120	Cotton ginghams and dress goods.
M. R. Strond & Son,	4151 Frankford road,	2—*a*120	*a*8	*a*3,2 0		260	Cottonades, osnaburgs, and ginghams.

William J. Tate,	2320 Lewis street,	1–*a* 15				5	Cotton and silk quilts.
Edward Townsend,	2421 Waterloo street,	1–*a* 15				*c*7	Shawls and coverlets.
William P. Troth, junior, & Co.,	Frankford,	*a* 25				100	Ginghams and dress goods.
Van Damme & Walsh,	414-26 Ella street,	1–*a* 10				*c*13	Patent and knitted netts, robes, &c.
Wall & Stewart,	Twenty-first and Alter streets,	*a* 30				80	Check, ginghams, and flannels.
John Watt & Son,	800 South Eleventh street,	*a* 40				138	Checks, ginghams, and shirtings.
F. E. Weidner & Son,	Sixth and Huntingdon streets,					*a*10	Coverlets.
William S. Weil's Son,	Huntingdon and Kensington,	*a* 15				*a*16	Fine coverlets.
S. Weil & Son,	Fourth and Callowhill sts., and Bridesb'g	1–*a* 12			*b*2	12	Quilts and woven coverlets.
William Whitaker & Sons,	Cedar Grove, near Frankford,	2–*a*150	*b*32	*b*8,000		168	Tickings, (all cotton.)
		b 30					
John Wilcox,	217 Girard avenue,	1–*a* 20	*b*3				Cotton batting.
John Williams & Son,	800 South Eleventh street,	*a* 25				130	Cotton checks and ginghams.

HOSIERY AND KNIT GOODS MANUFACTURES—PHILADELPHIA.

NAME OF OPERATORS.	LOCATION.	POWER. Engines. Horse-power.	a Wool cards b Cotton cards.	a Wool spindles. b Cotton spindles.	POWER KNITTERS a Circular heads. b Balmorals. c Rib-top frames, heelers, and sleevers. d Other frames.	POWER MACHN'Y a Jacket & glove frames. b Broad frames c Sewing machines d Other machines.	LOOMS. a Power. b Jacquard. c Hand.	HAND KNITTERS. a Tuttle frames. b Hand frames. c Broad hands frames. d Lamb knitters.	a Branson knitters b English hand frames. c English glove frames. d English jacket frames.	PRODUCT IN DOZEN PER WEEK a Hosiery. b Fancy articles. c Gloves. d Jackets.	GOODS MANUFACTURED.
Adams & Langfeld,	3d and Lehigh ave.,	15			a100 b4, c15	b25				a2,5 0	Cotton and woolen hosiery.
Thos. S. Aldridge,	Osceola st., (Gtn.,)	1— 8				b14				b 00 d100	Jackets, fancy hosiery, and fringes.
J. & B. Allen,	4548 Miller st., (Gtn.,)	2—100	a4	a2,000	a150 b8	b10 c60				a6,000 b1 000	Fine hosiery and fancy knit woolens.
James Allsopp,	2148 N. 2d & 1740 N. Front sts.,	1— 10			d7	a2, b4 c10			d6	b100 d175	Fancy knit woolens, jackets, &c.
Thos. Baker & Co.,	516-18 Dickinson st.,	1— 10			a40	c20				a1,200	Plain and fancy hosiery.
John Ballantyne,	177 Bringhurst st., (Gtn.,)	1— 8			a40 b8, c6	c10 d10				a1,800	Plain hosiery.
Wm. Beardsley,	4532 Miller st., (Gtn.,)								b1	d4	Cardigan jackets.
H. Becker & Co.,	429-37 Moyer st.,	1—80	a6	a2,240	a128 c 6	a12 c40				a4,500 b200 d450	Fancy woolens and wool jackets.
Samuel Bevins,	2002 Amber st.,							d2	d1	d7	Wool jackets.
R. E. Bender,	310 Master st.,										Hosiery embroidery.
Bew & Brown,	Roxborough,	1— 8			a20, c6					a500	Hosiery.
Bennett & Branson,	Mascher and Master,	1— 8			a50, c6	c20				a1,000	Hosiery.
J. N. Bill & Co.,	Clearfield & Frankford road,	1— 10			a24 b3, c4	c5				a1,000	Hosiery.
Mrs. S. Birchall,	Price st., (Gtn.,)	1— 5				b3		c10		b450	Fancy woolens and shawls.
Chas. Bitzer,	2010 Belgrade st.,							d4	d2	d40	All-wool cardigan jackets.
John H. Bishop & Co.,	306 Master st.,	1— 25			a125 c19	c18				a2,500	Reg. cotton and woolen hosiery.
Fred. Blickle,	1917 Coral st.,							d2	d1	a6, d4	Woolen hose and cardigans.
John Blickle,	267 Diamond st.,							d9	d1	d40	Cardigan jackets, all-wool.
Enoch Blood & Son,	304 Master st.,	1— 15			a 5 c14	c10				a1.300 c100	Hosiery and gloves.
John Blood & Bro.,	Allegheny and Trenton ave.,	1— 25			a 0, b3	c30				a3.000	Hosiery.
John Blood & Co.,	Emerald and Adams sts.,	1— 30			a129, b3 c5	c50			c14	a5,000 c400	Plain and fancy hosiery. Ringwood gloves, all wool.
William Bonsor,	181 Haines st., (Gtn.,)										

Joseph Boulter & Son,	Howard and Huntington sts.,	25			a150 b5, c11	c45					a6,000	Cotton and wool hosiery.
Timothy Brandreth,	5011 Engle st., (Gtn.,)									b1	a25	Hosiery.
Bristow Bros.,	Mehl & Wakefield sts., (Gtn.,)					b4				b 0	c300, d200	Gloves, mittens, and jackets.
George Brombly,	1503 N. 4th st.,								d4	c12	c500	Woolen gloves.
James Brown,	1617 Seybert st.,	1—10			a20	a4					a500, d150	Hosiery and jackets.
William Brown,	2800 Frankford road,	1— 6			a14						a350	Hosiery.
Conyers Button & Co.,	Walnut lane, (Gtn.,)	3—150	a6	a2,688	a160 b8, c12	a18, b31 c80					a7,000 b1,600 c300	Hosiery yarns hosiery, & fancy knit woolens, jackets, &c.
Campion & Huston,	Cumberland & Mill sts., (Gtn.,)	1—12			a85 b8, c10	c40					a3,000 b100	Hosiery and fancy woolens.
William Cardiff & Co.,	Crease above Girard ave.,	10			b3	c12					a1,500	Hosiery.
E. J. Carey,	Cornelius Mill,				a10					a 0	a200	Half hose.
Charles Can,	2d and Berks sts.,							d10			c100, d100	Gloves and jackets.
Robert L. Cartledge,	222 Price st., (Gtn.,)	1—10			a24, c3	c5					a 00, c200	Plain & fancy hosiery & gloves.
Clark & Beatty,	9th and Columbia ave.,	1—20			a100 b4, c10	c30					a1,000	Fancy cotton & wool hosiery.
Alfred Collard,	178 Ashmead st., (Gtn.,)								c12		c200	Ringwood gloves, all wool.
Conderman & Ryan,	Huntingdon & Kensington ave.	1—10			a110	c25					a3,500	Plain and fancy hosiery.
Thomas B. Cope & Bro.,	88 Hermann st., (Gtn.,)	1—18	a3	a1,500	a200	c60					a6,000 b300	Wool & cotton hosiery & fancy woolens, &c.
Lewis S. Cox & Co.,	Altmaier above Howard st.,	1—25			a160	c40					a6,500	Wool and cotton hosiery.
Robert Cuplit & Son,	5012 Engle st., (Gtn.,)	1—10			a25, b3	c10					a750	Finest all wool misses' hose.
Moses Dalzell,	138 Jefferson st., (Gtn.,)	1—10			a30	a3, c4					a500, c100	Fancy cotton & wool hosiery and gloves.
Samuel Dalzell,	115 Ashmead st., (Gtn.,)	1—			a20, b2	c6					a500	Fancy woolen & cotton hosiery
Thomas Dolan & Co.,	Oxford and Hancock sts.,	1—100			b8	a20, b40 c50					b5,000	Shawls and scarfs chiefly.
Robert Dunckley,	4183 Paul st., (Fkd.,)				a10						a250	Hosiery.
Flavell & Bro.,	Lena, (Gtn.,)	1— 3						b4			a20	Elastic scocklings, knee caps, &c.
Flavell Bros.,	29-31 Mill st., (Gtn.,)	1—10			a101 b8, c6	c40					a4,500	Plain and fancy hosiery.
Ernst Fleischer,	916 Poplar st.,	5			a11, c4			d4		b2	a100, d40	Wool hosiery and cardigan jackets.
George Fling,	4728 Main st., (Gtn.,)	1—10			a90 c20	c6				d3 d50	a2,000	Wool and cotton hosiery.
George Foster,	Blue Bell Hill,	1—15								c10	c100	Wool gloves.
Edward Gamble,	Coral and Adams sts.,	10			a52, b12						a1,500	Hosiery.
G. M. Given & Co.,	Howard, below Berks,	— 15			a60						a1,800	Fine and fancy hosiery.
John J. Glazier Bro. & Co.,	125 Taylor street,	1—40			a560, b18 c78	c90, d46					a16,000	Fine full fashioned and common hosiery.
C. & J. Gould,	149 Sharpnack, (Germantown,)	1— 8			a12						a1,500	Fancy hosiery.
John C. Graham,	523-525 Cherry street,	1—20			b3	b12, c10					b250	Scarfs, shawls, and fine fancy woolens.
Greaves & Thurman,	28 and 30 Bringhurst street,	1— 8			a2, c5					d13	a500, c50 d100	Hosiery, gloves, and cardigans.
Charles Green,	Miller street, (Germantown,)	1— 8			a20, c3						a700	Hosiery.
F. Guenther,	Fourth and Jefferson streets,										a100, d25	Hosiery and jackets.
Gunn & Johnson,	Lehigh avenue and Mascher st.,	1—25			a102 b5, c22	c26					a5,500	Wool and cotton hosiery.
William V. Gunn,	Lehigh avenue and Hancock,	1—25			a75, b2	c10					a3,500	Plain and fancy hosiery.

HOSIERY AND KNIT GOODS MANUFACTURES—PHILADELPHIA—*Continued.*

NAME OF OPERATORS.	LOCATION.	POWER			POWER KNITTERS	POWER MACH'Y	LOOMS	HAND KNITTERS.		PRODUCT IN DOZEN PER W'K	GOODS MANUFACTURED.
		Engines. Horse power.	*a* Wool cards. *b* Cotton cards.	*a* Wool spindles. *b* Cotton spindles.	*a* Circular heads. *b* Balmorals. *c* Rib-top frames, heelers and sleevers. *d* Other frames.	*a* Jacket & glove frames. *b* Broad frames. *c* Sewing machines. *d* Other machines.	*a* Power. *b* Jacquard. *c* Hand.	*a* Tuttle frames. *b* Hand frames. *c* Broad hand frames. *d* Lamb knitters.	*a* Branson knitters. *b* English hand frames. *c* English glove frames. *d* English jacket frames.	*a* Hosiery *b* Fancy articles. *c* Gloves. *d* Jackets.	
Samuel D. Hague,	2028 Frankford avenue,							*b*10		*a*300, *b*100	Hosiery and fancy goods.
Joseph Halford,	72 Hermann, (Germantown,)	1— 5			*a*12			*b*15		*a*350	Half hose.
A. Halstead,	5026 Franklin,							*d*4	*b*2	*d*50	Cardigan jackets, all wool.
Charles Hellmer,	247 Poplar street,							*a*10		*a*200	Woolen hosiery.
William Henderson,	123 Haines street, (Germant'n,)	1— 5			*a*10			*a*10		*a*350	Common half hose.
Hemphill & McKinley,	257 Market street,									*b*200	Hand knit fancy woolens.
F. W. & T. S. Henson,	4425 Main street, (Germant'n,)	1— 15	*a*1	*a*408	*a*20, *b*1	*b*15, *c*6				*a*1,000 *b*1,000	Hosiery, shawls, scarfs, &e.
J. H. Hebbard,	House of Refuge,							*a*100		*a*750	Wool hosiery.
Hill & Co,,	Lehigh avenue and Mascher st.	1— 40				*b*7				*b*500	Fine zephyr shawls and scarfs.
James Hogg,	Lehigh avenue and Mascher st.	— 15			*a*64					*a*3,800	Hosiery.
Charles Holland,	Montgomery ave. and Howard,	1— 15			*a*60, *b*4					*a*3,500	Ladies' fancy hose.
Holmes Brothers,	Eleventh and Noble,	— 8			*a*6					*a*350	Plain wool hosiery.
Reuben Holmes,	3500 Germantown avenue,							*d*5		*d*100	Wool jackets.
David Jarvis,	34 Wister street, (Germant'n,)				*c*1				*d*5	*d*20	Cardigan jackets, wool.
Jesson & Hanlfen,	1252 Savery street,	1— 30			*a*200, *b*10	*b*6, *c*50				*a*8,000 *b*100	Fine cotton and wool hosiery, &e.
Aaron Jones & Sons,	10 and 12 Wister street, (Germantown.)	2— 40	*a*6	*a*2,400	*a*30, *b*30	*b*20, *c*70	*b*20, *c*14			*a*4,500 *b*1,200	Fine cotton and wool hosiery and fancy goods.
Landenberger Manufacturing Company.	1101 Frankford road,	2—160	*a* 2	*a*5,800	*a*150 *b*15, *c*20	*b*75, *c*40	*a*209			*a*4,500 *b*4,000	Hosiery, hoods, shawls, scarfs, &e.
Love Brothers,	S. W. cor. Sixth & Susque. av.,	1— 20			*a*100, *b*5	*c*40				*a*3,500	Hosiery.
Thomas C. Love,	313 East York street,	1— 15			*a*80, *b*2	*c*40				*a*2,500	Plain and fancy hosiery.
MacCarroll Bros.,	226-30 E. York st. & 3005 Chestnut	1— 10			*a*80, *b*1	*c*30				*a*2,800	Plain and fancy cotton hosiery,
Joseph D. McKee,	Howard and Harrison,	1— 25			*b*10	*a*18, *b*30 *c*30	*c*9			*b*1,200 *d*300	Nublas, shawls, and fine jackets.
James McMann,	Frankford road & Cumberl'd,	1— 8			*a*8					*a*200	Hosiery.
Isaac Mansfield,	139 Bowman st., (Germant'n,)	1— 8			*c*8				*b*10	*a*200, *d*100	Hosiery and jackets, all wool.
Samuel Manship,	5011 Morton, (Germantown,)							*b* 7		*a*500	Wool and cotton hosiery.
George Marshall,	Spring and Royal sts., (Germantown.)					*a*5				*b*200, *d*200	Shetland shawls, nublas, and jackets.
William Martin,	Crease, above Girard avenue,	1— 15			*a*10, *b*10	*c*18				*a*1,500	Hosiery.

Henry Middleton,	122 Bringhurst street, (Germantown.)	1— 10			*a*16, *b*2	*a*18, *b*8				*a*1,500	Wool and cotton hosiery, fancy woolens.
										*b*250	
James R. Millhouse,	Broad and Germantown road,	1— 10			*a*30	*c*9				*a*500	Wool and cotton hosiery.
John Masland,	182 Bringhurst street, (Gtn.,)							*d*5		*a*200	Hosiery.
Thomas Mottram,	165 Rittenhouse street, (Gtn.,)							*b*12		*d*175	Cardigan jackets, all hand.
T. J. Mnstin & Co.,	515 Arch street,									*a*300	Fancy hosiery & knit woolens.
William Nichols & Co.,	Franklin and Girard avenue,	1— 50	*b*12	*b*3,000	*a*325 *b*10, *c*6	*b*3, *c*60				*a*9,000 *b*500	Cotton hosiery and fancy knit woolens.
Edward Noon & Son,	3917 Germantown avenue,	1— 6			*a*10, *c*12	*c*10				*a*600	Regular made hosiery.
John Noone,	25 Manheim, (Germantown,)								*b*7	*a*200	Children's fine hosiery.
Alfred Oliver,	Huntingdon, n. Kensington av	1— 10			*a*67, *b*4					*a*2,500	Fine wool and cotton hosiery.
James D. Orne,	Eleventh and Noble streets,					*b*.0		*d*9		*d*250	Cardigan jackets and heavy knit articles.
Owen Osborne,	Hancock and Huntingdon,	— 8			*a*20	*c*10				*a*600	Ladies' and children's embroidered hosiery.
O. D. Painter & Co.,	2304 North Eighth street.	1— 25			*a*160, *b*2, *c*9	*c*40				*a*6,000	Wool and cotton hosiery.
John Palmer's widow,	5014 Morton st., (Germantown,)								*b*4		Fancy woolens.
William Parker,	214 Diamond street,								*d*1	*d*20	Wool jackets.
John Patterson,	Second and Diamond streets,	1— 10			*a*24, *b*6	*c*10				*a*1,000	Woolen and cotton hosiery.
Pearce & Landenberger,	1716 North Fifth street,	1— 35			*a*120 *b*28, *c*40	*c*80				*a*.0,000	Plain and fancy hosiery.
George Peberdy,	Penn street, (Germantown,)	1— 40			*a*250 *b*7, *c*34	*a*9, *b*3, *c*55				*a*10,000 *d*150	Hosiery, fancy woolens, and jackets.
Samuel Peberdy,	1020 Blair street,							*d*2	*d*3	*d*50	Wool jackets.
Fergus Perry,	Wakefield and Wister, (Gtn.,)								*b*20	*c*1,000	Elastic belts and bandages.
Boas Phillips,	Wakefield and Mehl st., (Gtn.,)				*d* 0	*b*6				*c*600, *d*50	Ringwood gloves & cardigans.
Henry Pickering,	174 Bringhurst street. (Gtn.,)	1— 5			*a*12, *b*1					*a*300	Hosiery, all wool.
Pilling & Madeley,	Trenton avenue and Huntingdon street.	1— 35			*a*280, *c*120	*c*80				*a*12,000	Cotton and woolen and mixed hosiery.
W. H. Pinder,	2512 Mascher street,				*a*20					*a*400	Hosiery.
H. Posern,	1808 South street,								*b*1	*d*4	Fine jackets.
John G. Powell,	House of Refuge,							*a*25		*a*400	Plain hosiery.
John G. Powell,	Eastern Penitentiary,								*a*185	*a*1,800	Plain hosiery.
James Preston,	5004 Englestreet, (German'wn,)	1— 10				*a* 9, *b* 12				*c*300, *d*150	Wool gloves and cardigans.
H. R. Price.	202 Market street,								*a*10	*a*150	Hand knit hosiery
Schofield & Branson,	American and Jefferson sts.,	1—100	*b*11	*b*4,000	*a*432, *b*6 *c*50	*c*120				*a*15,000	Cotton and merino hosiery.
M. Schwalb,	Fisher's Hollow, (German'n,)								*b*8	*b*200	Fancy knit woolens.
Alexander Shaw,	Hancock and Huntingdon sts.,	1— 25			*a*90, *b*10	*c*25				*a*3,500	Plain and fancy hosiery.
Thomas Sherman,	4554 Wakefield st., (Germ'n.)	1— 8			*a*24	*a*3			*d*3	*a*500, *d*25	Cardigan jackets, fancy woolens and hosiery.
William Shingle,	Goodwin. Rising Sun,								*c*3	*c*20	Ringwood gloves.
Joseph Smalley,	Center, (Germantown,)	1— 4			*a*20	*c*2				*a*600	Hosiery.
Charles Spencer & Co.,	Cumber'nd & Armat st., Ger'n,	4—150	*a*5	*a*4,000	*a*280, *b*45, *c*25	*b*84, *c*100				*a*,6000, *b*500	Wool & cotton hosiery, shawls, scarfs, &e.
Isaac Springthorpe,	Wakefield & Wister sts., Ger'n,	1— 8			*c*4	*a*10			*d*4	*b*.00, *d*150	Hoods, scarfs, and cardigans.
C. Stevenson & Co.,	N. E. cor. Second & Diamond,	1— 10			*a*47, *b*2	*c*20				*a*1,200	Hosiery.
William Sullivan & Co.,	Palethorp and Oxford streets,	1— 20			*a*60, *c*15	*c*25				*a*2,500	Plain and fancy hosiery.
C. A. Thndlum & Son,	Putnam and Mascher streets.	1— 85			*c*10	*a*15, *b*30, *c*20				*b*250, *d*600	Shawls and cardigan jackets.
Jos. Thurman, junior, & Son,	Wingohocking station, Ger'n,	1— 10			*b*4, *c*12	*a*10, *c*.0				*b*600, *d*40	Shawls, fancy knit woolens, and jackets.
Techner & Frank,	Fifth, above Market street,					*c*20		*b*50		*b*800	Fancy zephyr articles.

HOSIERY AND KNIT GOODS MANUFACTURES—PHILADELPHIA—*Continued.*

NAME OF OPERATORS.	LOCATION.	POWER. Engines. Horse power.	*a* Wool cards. *b* Cotton cards.	*a* Wool spindles. *b* Cotton spindles.	POWER KNITTERS *a* Circular heads. *b* Balmorals. *c* Rib-top frames, heckers, and sleevers. *d* Other frames.	POWER MACH'Y *a* Jacket & glove frames *b* Broad frames. *c* Sewing machines. *d* Other machines.	LOOMS. *a* Power. *b* Jacquard. *c* Hand.	HAND KNITTERS. *a* Tuttle frames *b* Hand frames. *c* Broad hand frames. *d* Lamb knitters.	*a* Branson knitters. *b* English hand frames. *c* English glove frames. *d* English jacket frames.	PRODUCT IN DOZEN PERWEEK *a* Hosiery. *b* Fancy articles. *c* Gloves. *d* Jackets.	GOODS MANUFACTURED.
Edward Townsend,	2421 Waterloo street,	1— 10				*a*3, *b*7				*b*300	Nubias, searf fringes all wool.
H. Townsend,	York, above Waterloo street,								*d*2	*d*10	Cardigan jackets.
William A. Vernon,	Amber and Letterly streets,	1— 40			*a*200, *b*8, *c*82	*c*40				*a* 6,500	Hosiery.
Alfred Vezin & Co.,	Asylum road, (Frankford,)	1— 80	*a*4	*a*2,100	*a*175, *b*8, *c*25	*c*50				*a*6,800	Hosiery.
Viekers & Weston,	Montgomery and Howard sts.,				*b*15	*c*30				*a*3,000	Hosiery.
A. Waldman,	1210 Columbia avenue,								*a*4	*a*200	Hosiery and hand-knit goods.
Wallace & Cochran,	Taylor street,	1— 15			*a* 50					*a* 800	Hosiery, cotton and woolen.
John S. Ward,	1944 Blair street,								*b* 2	*d*10	Cardigan jackets.
C. Weigand,	1329 North Tenth street,									*a* 500	Mixed half-hose.
John Welthall,	Second and Diamond streets,					*a*2, *b*2				*d*40	Wool jackets.
Ambrose West,	135 Bringhurst st., (German'n,)	1— 10			*a*94, *c*4	*c*30				*a*2,500, *d*50	Hosiery and jackets.
Samuel West,	127 Ashmead st., (German'n,)	1— 25			*a*250, *c*35	*d*6, *c*45				*a*6,000	Cotton and merino hosiery.
Samuel Whittle,	York and Palethorp streets,	1— 15			*a*100, *b*2	*c*25				*a*2,500	Cotton and woolen hosiery.
John Why,	4559 Miller street,					*a*1, *b*3			*b*4	*d*40	Cardigan jackets.
W. H. Wilcox,	Crease, above Girard avenue,	— 8			*a*25	*c*10				*a*800	Hosiery.
Wilson & Co.,	Howard and Huntingdon sts.,	— 20			*a*200, *b*18	*c*40				*a*4,800	Hosiery, cotton and woolen.
Thomas Woodcock & Son,	Wakefield street, (German'n,)	1— 8			*a*69, *b*1	*a*2, *b*10, *c*7				*a*,1500, *b*120, *c*200, *d*50	Hosiery, fancy woolens, and jackets.
William Wrightson,	407 Columbia avenue,	1— 15			*b*20	*c*20				*a*1,200	Hosiery.
William Yates,	1648 North Second street,	1— 10				*a*5				*d*100	Cardigan jackets.

SILK AND SILK MIXED GOODS MANUFACTURERS—PHILADELPHIA.

Name of Operator.	Location.	Power. Engines.	Power. Horse-power.	Sets. a Wool cards. b Cotton cards.	a Wool spindles. b Cotton spindles. c Silk spindles.	a Chenille machines. b Winding frames.	Looms and power machines.	Goods Manufactured.
Aub, Haekenburg & Co.,	20 N. Third and 244 N. Front street,	1	50		c2,500			Wind silk from raw state, and make sewing and machine twist.
Noah Barlow,	Fifty-third and Westminster, West Phila.	1	15				8	Upholstery coverings mixed with silk.
Beswick & Kay,	Twenty-fifth and Callowhill street,	1	50	a8	a5,600			Silk-mixed upholstery yarns.
George Brooks & Son,	Fifty-fifth and Westminster, West Phila.	1	25				25	Reps, terries, and upholstery goods.
William Coleman,	25 N. Sixth street,						17	Gimps, fringes, tassels, cords, &c.
Columbia Mutual Silk Manufacturing Company,	319-23 Garden street,	1	20		c1,000		40	Tram, organzine, and sewing silk.
Croxton & Wood,	Wayne street, Germantown,	1	20				50	Silk ribbons, trimmings, &c.
W. B. Cunningham,	34 S. Second street,					a1	15	Silk fringes and tassels.
Henry Davenport, (3 mills,)	York, Waterloo, and Mascher streets,	1	60				250	Spun and raw silk, gimps, fringes, &c.
John Davenport,	1717 Bodine street,		20				20	Silk and mixed upholstery goods.
G. & E. Davenport,	American and Susquehanna avenue,		20				20	Gimps and narrow silk goods.
H. L. Freyer,	727 Jayne street,	1	15				18	Silk fringes and trimmings.
E. H. Godshalk,	S. W. cor. Twelfth and Buttonwood sts.,	1	60				175	Silk dress trimmings.
Emil Goldberg,	316 Noble street,	1	8				20	Silk tassels, fringes, and shawls.
J. C. Graham, (2 mills,)	517-525 Cherry street,	2	70			a6	150	Silk dress trimmings, fringes, &c.
S. R. & F. Hansell,	21 N. Fourth, and Fourth and Race sts.,		30				50	Upholstery and shade trimmings.
Harpst, Montague & Co.,	Howard below Berks street,	1	100	a3	a1,400			Silk nolls and silk-mixed yarns.
Hensel, Colladay & Co.,	24 N. Fifth street,	1	25			a8	250	Silk and worsted trimmings, and silk dress trimmings.
B. Hooley & Co.,	226 Market street,							Tram, organzine, sewing silk, and twist.
W. H. Horstmann & Sons,	Fifth and Cherry street,	2	85		c500		650	Fringes, dress trimmings, scarfs, ribbons, &c.
Samuel Hunter,	Trenton avenue and Adams street,		15			b2	10	Raw and spun silks.
William Hunter & Son,	713-19 Dickinson street,	1	15				40	Upholstery coverings and tapestries.
Werner, Itschner & Co.,	7 4 Market street,	1	50		c750		100	Ribbons, scarfs, and narrow silk goo is.
Jenkins & Avery,	313 Race street,	1	15				20	Silk fringes, tassels, &c.
Kaufman. Strouse & Co.,	N. W. corner Fourth and Race streets,	1	20			a6	50	Silk scarfs, trimmings, &c.
Kemper & McAuliffe,	33 S. Fourth street,	1	15				80	Silk dress trimmings.
W. Lonnerstadter,	103 N. Eighth street,						5	Silk and worsted dress trimmings.
M. W. Lipper & Co.,	146 N. Fifth street,	1	40				140	Silk trimmings, fringes, scarfs, &c.
F. W. Maurer,	7-9 N. Fifth street,	1	10				50	Upholstery, blind and shade trimmings.
D. & J. C. Noblet,	222 S. Second street,	1	50				100	Upholstery coverings, tapestries.
Oldfeldt & Brother,	Second and Diamond street,	1	10				6	Upholstery cloths for chairs and lounges.
Fergus Perry,	Wakefield and Wister street, German'n,						20	Elastic belts and surgical bandages.

SILK AND SILK MIXED GOODS MANUFACTURERS—*Continued.*

NAME OF OPERATOR.	LOCATION.	POWER.	SETS.				GOODS MANUFACTURED.
		Engines. Horse-power.	*a* Wool cards. *b* Cotton cards.	*a* Wool spindles. *b* Cotton spindles. *c* Silk spindles.	*a* Chenille machines. *b* Winding frames.	Looms and power machines.	
Philadelphia Silk Manufacturing Company,	60 Canal street,	1— 40				60	Gros grain ribbons, belting, &c.
J. Revel,	Fifty-fifth and Westminster sts., W. P.,	10				12	Silk and worsted dress trimmings, &c.
Edward Ridgeway,	Sixty-second near Haverford, West Phil.,	1— 16				13	Reps, terries, tapestries.
Charles Rose,	320 Willow street,					10	Silk fringes and trimmings.
Sauquoit Silk Manufacturing Company,	Raudolph and Columbia avenue,	1—100		*c*2,500		60	Tram, organzine, winding silks, &c.
Edward Schultheiss,	827 N. Third street,				*a*1	10	Silk dress trimming and fringes.
Stead & Miller,	Adams above Coral,	30				51	Silk-mixed upholstery coverings.
Thomas Thompson, Son & Co.,	240 S. Second street,	1— 20				40	Reps, terries, and silk-mixed upholstery goods.
Woelpper & Brother,	Third and Lehigh avenue,	1— 35				42	Upholstery and shade trimmings.
August Walliser,	123 N. Eighth street,					5	Silk dress trimmings.
Charles Walliser,	209 S. Eighth street,					8	Silk and worsted dress trimmings.
J. H. Wilson,	Howard and Huntingdon street,	15				40	Silk and mixed military goods.
George T. Frost & Co.,	327 Adams street,	1— 10				15	Fringes, cords and tassels. Closed Dec., 1879.

WOOLEN MANUFACTURES—PHILADELPHIA.

Name of Operators.	Location.	Power: Engines. a Horse-power. b Water.	a Wool cards. b Cotton cards. c Combs.	a Wool spindles. b Cotton spindles. c Worsted spindles.	Garnett machine.	Looms: a Power. b Broad. c Hand.	Goods Manufactured.
Almy & Clark,	Huntingdon and Kensington,	1— *a*40	*a*3	*a*1,320	. .	*b*30	Fine cloakings and dress goods.
Bardsley and Craven,	Stenton avenue, (Gtn.,)	4— *a* 50	*c*4	*c*2,880	. . .	200	Delaines, alapaeas, and worsted goods.
Barlow & Crossland,	Haddington, (W. P.,)	1— *a* 8	*a*1	*a*450	. .	10	Wool and worsted shawls.
David S. Brown, junior, & Co.,	69th and Haverford road,	1— *a*45	*a*5	*a*2,000	. .	140	Doe-skins, tweeds, cassimeres.
John Brown's Sons,	3d and Moore streets,	1— *a*70	*a*6	*a*2,400	. . .	160	Doe-skins, cassimeres, coatings.
John Brown's Sons,	8th and Tasker streets,	3—*a*350	*a*30	*a*9,400	. . .	400	Woolens generally.
R. C. Buggy.	N. E. cor. 21st and Washington avenue,	1— *a*35	*a*4	*a*1,600	. . .	56	Jeans, flannels, linseys.
Campbell & Elliott,	N. E. 12th and Washington avenue,	3—*a*115	*a*6	*a*2,481	. . .	600	Doe-skins, flannels, suitings.
John G. Carruth,	Howard and Huntingdon,	*a*18	. . . .	. . . .	. . .	60	Cotton and woolen goods.
Thomas Cochrane,	1713 Waterloo street,	1— *a*20	. . . .	. . . .	.	*a*22, *c*8	Worsted shawls, dress goods, &c.
P. Collins & Sons,	1314-18 Lawrence street,	1— *a*80	. . . .	. . . .	. .	150	Dress goods, worsted, and cotton.
Joseph Culbert,	Worth near Oxford street, (Fkd.,)	1— *a*40	. . . .	. . . .	. . .	220	Flannels, linseys, &c.
John Culbertson & Son,	23d and Hamilton street,	1— *a*45	. . . .	. . . .	. . .	100	Cottonades and flannels.
Robert Dallas.	Worth and Oxford streets,	1— *a*35	. . .	. .	. . .	60	Ginghams and linseys, cotton and mixed.
William J. Dickey & Sons,	46th and Haverford road,	1—*a*120	*a*6	*a*2,400	. . .	200	Linseys, flannels, osnaburgs.
John & James Dobson,	Falls of Schuylkill,	3—*a*400	*a*33	*a*11,000	. . .	*b*200	Blankets.
John & James Dobson,	Falls of Schuylkill,	1—*a*100	*a*5	*a*2,000	. . .	*b*30	Cloths, coatings.
Thomas Dolan & Co.,	Oxford and Hancock street,	5—*a*500	*a*20	*a*12,000	. . .	*b*750	Woolen and worsted goods.
Elliott Bros..	Carpenter below 15th street,	1— *a*30	. . .	. .	. . .	60	Cotton and woolen goods.
George P. Evans,	Crescentville,	1— *a*50 *b*50	*a*3	*a*1,850	. . .	60	Fine cassimeres.
George Evans.	1911 N. 6th street,	1— *a*10	. .	. .	. .	26	Shawls, dress goods, &c.
Fitzpatrick & Holt,	Manayunk,	1—*a*225	*a*13 *b*10	*a*6,404 *b*2,244	. . .	306	Doe-skins, wool cheviots, &c.
Folwell Brothers,	Coral and Adams streets,	1—*a*100	*c*4	*c*2,400	. . .	150	Fine worsted yarns, dress goods, &c.
H. Galashan,	Coral and Taylor streets,	*a*20	.	.	.	78	Cotton and woolen goods.
Garsed & Stone,	Church street, (Fkd.,)	1—*a* 00	*a*2	*a*800 *b*4,000	. . .	80	Cotton and woolen goods.
Edmund Greasley, junior,	405 N. 8th street.	1— *a*15	. . . .	. . . .	. . .	20	Shawls, skirts, dress trimmings, &c.
John Greer & Co.,	16th and Reed street,	1— *a*60	*a*3	*a*1,850	. . .	132	Wool and mixed dress goods, wool cassimeres.
John Greer & Co.,	N. E. 21st and Washington streets,	1— *a*15	. . .	. .	. . .	48	Wool and mixed dress goods.
Joseph Greer,	Coral and Adams streets,	1— *a*35	*a*2	*a*1,200	. . .	140	Linseys, flannels, cottonades.
Daniel Hales,	2206 Holman street,	1— *a*10	. . .	. .	.	*b*14	Shawls, all wool.
H. & D. Henry,	62d and South streets, (W. P.,)	1— *a*50	*a*5	*a*2,400	1	137	Jeans, flannels, cottonades.

WOOLEN MANUFACTURES CONTINUED—PHILADELPHIA—*Continued.*

NAME OF OPERATORS.	LOCATION.	POWER: Engines. *a* Horse-power. *b* Water.	*a* Wool cards *b* Cotton cards. *c* Combs.	*a* Wool spindles. *b* Cotton spindles. *c* Worsted spindles.	Garnett machine	LOOMS: *a* Power. *b* Broad. *c* Hand.	GOODS MANUFACTURED.
Sellers Hoffman,	Cobb's creek, (W. P.,)	1— *a*45	*a*4	*a*1,600	. .	126	Kentucky jeans.
A. D. Irwin & Bro.,	N. W. 9th and Columbia avenue,	1— *a*40	. . . .	. . . . .	. . .	97	Dress goods, wool, and cotton.
A. D. Irwin & Bro.,	5th and Columbia avenue,	*a*25	. . . . .	. . . .	. . .	100	Dress goods, wool, and cotton.
Irwin & Stinson,	N. E. Mascher and Columbia,	1— *a*80	. . . . .	. . .	. .	244	Flannels, linseys, and cotton checks.
C. S. & J. P. Jones,	Manayunk,	2—*a*180	*a*8	*a*3,300	. .	183	Doe-skins, jeans, &c.
C. S. & J. P. Jones,	Frankford,	1—*a*100	*a*3	*a*1,200	. . .	238	Cotton and mixed goods.
Kaye & Byrom,	2529 Fairhill street,	1— *a*10	. . . . .	. . .	. .	25	Worsted shawls, sheets, &c.
Chas. H. Landenberger,	1711 Randolph street,	1— *a*40	. . . . .	. . . .	. . .	30	Fine worsted dress goods.
J. Leech & Brother,	Manayunk,	1— *a*40	*a*3	*a*1,126	. . .	65	Doe-skins, jeans, and wool yarns.
William McIlwain,	1647 Marshall street,	1— *a*30	. . . . .	. .	. . .	56	Coatings, wool and worsted.
McLaughlin & Riley,	Paschalville, (W. P.,)	1— *a*60	*a*3	*a*1,200	. .	64	Jeans.
Henry Marshall,	56 cor. Race street, (W. P.,)	1— *a*10	. . . . .	. . . .	. . .	18	Shawls.
John Miller & Co.,	Randolph and Jefferson streets,	*a*20	. . .	. . .	. . .	30	Dress goods and shawls.
C. J. Milne,	1824 Lombard street,	1— *a*80	*a*3	*a*1,048	. . .	258	Flannels, linseys, checks, and ginghams.
Joseph P. Murphy,	S. E. cor. 4th and Cumberland,	1—*a* 00	. . .	. . . .	. . .	*a*360, *c*100	Shawls and dress goods.
Matthew Murphy,	Howard and Jefferson streets,	1— *a*20	. . . . .	. . . .	.	*b*15	Elastic webbing, frills, bindings, &c.
Samuel McPherson,	1761 Waterloo street,	1— *a*20	. . . . .	. . . . .	. . .	28	Cotton and woolen goods.
James F. Murray,	Lehigh avenue and Mascher street,	1— *a*20	. . .	. . .	. . .	40	Cotton and woolen goods.
James Nolan,	Howard and Jefferson streets,	1—*a*300	*a*5	*a*2,400	. .	150	Flannel, jeans, and cottonades.
Patton, Allison & Jones,	N. W. 12th and Washington,	1— *a*60	*a*6	*a*2,800	. . .	140	Wool and cotton mixed dress goods.
Porter & Dickey,	S. W. Howard and Norris streets,	1— *a*80	. . . . .	. . .	. . .	325	Linseys, flannels, checks, &c.
Porter & Dickey,	Howard below Berks street,	*a*20	. . .	. . .	. .	60	Linseys, flannels, checks &c.
James M. Preston,	Manayunk,	3—*a*250	*a*18	*a*7,200	. .	450	Doe-skins, jeans, and suitings.
		1—*a*100	*b*24	*b*6,000			
W. F. Read,	12th and Snyder avenue,	1— *a*25	. . .		. .	55	Fine worsted goods.
Scheppers Brothers,	243 Diamond street,	13—*a*340	*c*5	*c*3,900	. .	318	Fine worsted dress goods, men's sultings.
Sevill Schofield,	Manayunk,	3—*a*800	*a*24	*a*9,500	. . .	*b*155	Beavers, cloths, and blankets.
Sevill Schofield,	Manayunk,	2—*a*150	*a*5	*a*4,800	. . .	*b*54	
Thomas Schofield,	West Manayunk,	1— *a*50	*a*4	*a*2,200	. .	50	Doe-skins wool, and cotton dress goods.
J. C. Schroder & Co.,	117 N. 4th street,	1— *a*30	. . .	. . .	. . .	80	Worsted dress goods and shawls.
J. B. Seybert,	9th and Columbia avenue,	*a*20	. . .	. .	. . .	*b*30	Worsted dress goods.
Smith & Crenshaw,	Frankford,	1— *a*30	*a*1	*a*432	. .	18	Kentucky jeans.
Sidney J. Sohns,	Manayunk,	2—*a*25	*a*14	*a*4,038	. . .	280	Navy and army flannels and cloth, &c.
		*b*100					
F. Steffan & Co.,	1344-6 N. Front street,	1— *a*60	. . . . .	. . . . .	. . .	*a*64, *c*44	Worsted coatings, shawls, and dress goods.

F. Steffan & Co.,	21st and Washington streets,	*a*30					*b*25	Cassimeres and coatings.
John Sullivan & Sons,	9th and Montgomery avenue,	1— *a*50					*a*90	Cotton and worsted fringes, tapes, &c.
S. Thornton & Sons,	S. E. cor. 5th and Columbia avenue,	1— *a*50					253	Linsey and flannels, dress goods.
Paul Von Ansberg,	Canal and Lawrence,	1— *a* 00		*a*10		*a*3,120	76	Fine wool and worsted goods.
David Wallace & Sons,	Manayunk,	1— *a*159	*a*3, *b*3			*a*1,600	84	Jeans.
						*b*2,240		
Joseph Welsh,	Columbia avenue, 5th street, Gtn. road,	*a*30					130	Cotton and woolen goods, chiefly flannels.
Joseph Welsh,	Columbia avenue, 5th street, Gtn. road,	*a*20					100	Cotton and woolen goods, chiefly flannels.
Edward White,	Columbia avenue, 5th street, Gtn. road,	1— *a*100					202, *b*80	Cotton, woolen and worsted goods, shawls, &c.
James Wilson,	1146 Charlotte street,	1— *a*35					50	Boot-web, carpet and other bindings, braid.
Thos. H. Wilson,	5th and Berks streets,	1— *a*30					*a*40, *c*10	Shawls and dress goods.
Fred. Wink,	Howard below Berks street,	*a*15					20	Worsted coatings and shawls.
Stephen Wood,	Adams and Amber streets,	*a*12					26	Woolen and cotton goods.
Wm. Wood & Co.,	22d and Spring Garden streets,	5— *a*60		*a*30		*a*12,000	730	Cottonades, jeans, flannels, &c.
Wm. Wood & Co.,	24th and Hamilton streets,	1— *a*160					80	Cottonades and mixed goods.
James S. Woodward's Sons,	Coral and Taylor streets,	*a*20					64	Cotton and wool dress goods.

YARN MANUFACTURERS, PHILADELPHIA.

NAME OF OPERATORS.	LOCATION.	POWER. Engines. a Horse-power b Water.	a Wool cards. b Cotton cards. c Combs.	a Wool spindles. b Cotton spindles. c Worsted spindles.	a Garnett machine. b Self-actors. c Frames. d Hand mules. e Looms.	GOODS MANUFACTURED.
Joseph M. Adams,	Lower Manayunk,	1—a 10	a1	a324	. . .	Wool carpet yarns.
Job Batty,	Adams and Emerald streets,	1—a100	a3	a460	b1	Wool carpet yarns.
Robert Beatty,	Coral and Letterly,	1—a100	a3	a1,160	. . . .	Cotton hosiery yarns.
			b22	b3,600		
R. Blankenburg & Co.,	209-13 Church street.	1—a 10	. . . .	. .	c20	Germantown wool and Shetland floss.
Byrom Brierly,	Bowman and Chelten avenue,	1—a 30	a3	a954	. . . . .	Woolen yarn.
Bromley & Co.,	Wister street. Germantown,	1—a120	a2	a984	. . . .	Fine cotton and wool hosiery yarn.
George Campbell,	S. E. corner Twenty-first and Washington ave.,	2—a220	a7	a2,400	e125	Fine worsted and wool yarns.
			c9	e6,020		
Joseph Carr,	Cresheim creek, near Germantown,	1—a 20	b6	b500	. . .	Cotton yarn and wicking.
John Clapp,	Paul and Meadow streets, Frankford,	1—a 40	a4	a1,400	a4	Hosiery and carpet yarns.
Horatio N. Craven,	1717 Bodine street, Germantown,	1—a 70	e2	c1,200	. . . . .	Fine worsted yarns.
D. Crowther & Son,	Penn street, Germantown,	1—a 30	a4	a2,000	. . . . .	Fine wool hosiery yarns.
J. Dalton & Bro.,	Howard and Berks streets,	a 20	a2	a1,200	. . . . .	Hosiery yarns.
James Doak, junior, & Co.,	566 East Norris street,	1—a 80	c4	c2,100	e120	Fine worsted yarns, (worsted coatings.)
William Emsley & Bro.,	Emerald and Adams street,	1—a 65	a6	a3,600	. . . . .	Merino and wool yarns.
Fiss, Banes, Erben & Co.,	2416 Spring Garden street,	3—a300	a4	a2,400	. . . . .	Fine worsted yarns.
			c12	e6,032		
Andrew Flanagan & Bro.,	Manaynnk,	a 35	a3	a900	. . . . .	Carpet yarns, (mixed cotton and wool.)
S. B. & M. Fleisher,	Twenty-fifth and Biddle streets,	1—a180	c5	c2,400	e620	Braid looms, on worsted braids gimps, wool and worsted zephyr yarns.
Joseph Fling,	Wister street, Germantown,	1—a 25	a3	a1,600	. . . . .	Fine wool and mixed hosiery yarn.
Richard Garsed,	Taconey, near Oxford,	2—a380	b98	b16,000	. . . . .	Cotton warp yarns.
John Gibson,	Collins and Fox streets,	1—a 20	a4	a1,400	. . . . .	Wool yarns.
John Greaves & Bro.,	Godfrey and Twentieth streets, Germantown,	1—a 25	a4	a1,600	. . . .	Wool and merino hosiery yarns.
Heft & Ogle,	Manayunk,	1—a100	a6	a2,400	e150	Carpet and hosiery yarns, jeans and dress goods.
		b 50				
David Hey,	Chestnut Hill,	1—a 60	a3	a880	e12	Carpet yarns, [looms not running.]
Richard Hey,	Manaynnk,	1—a 60	a4	a1,000	. . . .	Woolen carpet yarns.
M. F. Hill,	Mount Airy,	1—a 30	a3	a1,100	. . . . .	Woolen carpet yarns.
William Hodson,	Armat street, Germantown,	1—a 40	a3	a1,400	. . . . .	Wool and mixed yarns.
John P. Holt,	Manayunk,	1—a 40	a5	a3,000	. . . . .	Hosiery yarns, (wool and merino.)
Oliver F. Holt,	Lower Main street Manayunk,	1—a 36	a3	a1,416	. . . . .	Hosiery yarns.
Jaggers & Jones,	Coral and Taylor streets,	a 25	a4	a2,520	. . . . .	Fine wool hosiery and carpet yarns.
James & Davenport,	Manaynnk,	a 20	a2	a2,900	. . . . .	Carpet yarns, (wool and cotton.)
William Johnson,	Front and Coral streets,	1—a 20	a2	a480	. . . . .	Woolen yarns.
William Johnson,	Amber and Huntingdon streets,	1—a 50	a2	a875	. . . . .	Wool carpet yarns.

William Johnson,	Southwest corner Fifth and Columbia avenue,	1—a 50	. . . .	. . . . .	. . . . .	Flocks and shoddy.
Jones & Atmore,	Fifty-fourth street and Hunter's lane,	1—a 40	a8	a3,200	. . . . .	Woolen yarn.
John Kelly,	Manayunk,	a 15	a2	a1,200	. . . . .	Fine wool yarns.
T. Kenworthy & Bro.,	Manayunk,	1—a 60	a9	a3,200	. . . . .	Carpet yarns, (wool and mixed.)
Richard Kershaw,	2032 Naudain street,	1—a 80	a2	a800	c15	Fine worsted yarns and worsted goods.
			c3	c2,500		
James G. Kitchew,	Germantown avenue and 112 North Front street,	1—a100	a10	. . . .	a7	Carpet yarns and flocks.
John Lee,	Emerald street and Allegheny avenue,	1—a 60	a3	a1,100	. . . . .	Carpet yarns, (wool and cotton.)
Robert A. Lee,	Terrace street, Manayunk,	1—a 30	. . . .	. . . .	a3	Wool carding and shoddy.
Thomas Lee,	Manayunk,	1—a 15	. . . .	. . .	. . . . .	Carding cotton and wool waste.
Fleetwood Lodge & Bro.,	Bustleton,	1—a 30	a2	a600	. . . . .	Cotton yarns, cords, batting.
John F. Lodge,	Hart lane and Emerald street,	1—a 70	a23	a2,400	. . . . .	Cotton carpet yarn.
Joshua Madeley,	Emerald and Adams streets,	a 30	b10	b2,232	. . . .	Cotton hosiery yarns.
Francis Mahery,	Armat and Cumberland streets, Gtn,,	a 15	a2	a800	. . . . .	Wool and mixed yarns.
Meadow Croft & Sons,	Emerald and Sergeant streets,	1—a 30	a6	a2,400	. . . . .	Wool yarns.
D. C. Moore & Co.,	678 North Broad street,	1—a 20	. . . .	. .	a4	Flocks and wool rolls.
Robert Mortimer & Son,	Wakefield and Ashmead streets, Germantown,	1—a 30	a3	a1,620	. . . . .	Wool and mixed hosiery yarns.
Midnight Yarn Company,	Germantown avenue and St. John street,	1—a 40	a5	a2,500	. . . .	Fine wool, Germantown, and cashmere yarns.
A. Platt & Bro.,	Main street, Manayunk,	1—a 80	a6	a3,200	. . . . .	Hosiery yarns.
			b10	b2,500		
Robert Platt,	Germantown,	1—a 35	b6	b1,800	. . . .	Cotton hosiery yarns.
Pollett & Walsten Croft,	Jasper and Huntingdon streets,	1—a 30	a2	a1,200	. . . . .	Wool and cotton hosiery yarns.
			b6	b1,250		
Joseph Randall & Bro.,	86 Sharpnack street, Germantown,	1—a 80	a5	a2,068	. . . . .	Wool hosiery, shawl, and jacket yarns.
Randolph & Jenks,	Powder Mill lane, Frankford,	1—a120	b22	b6,000	. . . . .	Cotton warps and hosiery yarns.
Rice & Bean,	Schur's lane, Manayunk,	1—a 40	a5	a2,290	. . . . .	Fine wool yarns.
D. & W. Ring,	Randolph street, above Jefferson,	a 35	a5	a2,563	b6	Wool hosiery yarns.
Jonathan Ring & Son,	Mascher and Columbia avenue,	1—a 40	a3	a1,600	b4	Wool hosiery yarns.
Scatchard & Hoffman,	Girard avenue and St. John street,	1—a 40	a4	a2,004	. . . .	Wool and merino hosiery yarns.
Joseph Scatchard's Sons,	East Chelten avenue, Germantown,	1—a130	a6	a3,000	a4	Wool and merino hosiery yarns.
Charles Schofield,	Lower Main street, Manayunk	a 15	a1	a600	. . . . .	Wool carpet yarns.
John Schofield,	Trenton and Susquehanna avenue,	a 20	a1	a300	. . . . .	Wool carpet yarns.
John Schofield,	West Manayunk and Arch street, above Front,	1—a 50	a7	a2,500	. . . . .	Fine wool yarns.
Schofield, Mason & Co.,	West Manayunk and 30 North Front street,	1—a 00	a4	a2,400	. . . . .	Fine wool and merino yarns, (carpet yarns.)
			c3	c1,800		
Thomas Schofield,	Upper Manayunk,	1—a100	a6	a2,160	. . . . .	Carpet yarns, (all wool.)
		b 80				
William Scholes & Son,	Northwest corner Coral and Adams streets,	a 30	a3	a1,500	. . .	Hosiery yarns.
Shaffner & Stringfellow,	12 0 South Twelfth street,	1—a 50	a3	a1,200	20	Germantown wool and cotton knit yarn,
Charles Shaw,	East Chelten avenue, Germantown,	1—a 20	a2	a1,160	. . . . .	Cotton and merino hosiery yarns.
Smith, Brother & Gould,	Cresheim road, Germantown,	1—a 50	a4	a6,250	. .	Hosiery yarns, (cotton and wool.)
Taylor Spink,	Cresson street, Manayunk,	1—a 50	a3	. . . .	a2	Wool rolls and flocks.
Stafford & Co.,	Manayunk,	1—a 70	a6	a1,800	. . . . .	Wool carpet yarns.
James Stafford,	Church street, Manayunk,	1—a 45	a2	a650	. . . . .	Carpet yarns, (wool and mixed.)
Stead Brothers,	Coral and Adams streets,	a 30	a2	a1,400	. . . . .	Fine wool yarn and cotton hosiery yarns.
			b8	b1,400		
Isaac Stead,	Howard and Berks streets,	a 50	a6	a5,260	. . . . .	Fine wool and merino hosiery yarns.
Thomas Sterrett,	Otis and Holman streets,	1—a 35	a2	a650	. . . .	Carpet yarns, (woolen.)
B. L. Stokes,	Duy's Lane Station, Germantown,	a 35	e2	c2,016	. . . . .	Fine worsted yarns.
Taylor Brothers,	84 Mill street, Germantown,	1—a 25	a4		. . . . .	Shoddy and flocks.
Taylor Brothers & Co.,	Coral and Taylor streets,	a 40	a2	a1,400	. . . .	Wool and merino hosiery yarns,
			b8	b1,400		
William Thornton,	1214 Crease street,	1—a 30	a2	a350	. . . . .	Wool and carpet yarns.

YARN MANUFACTURERS—*Continued.*

NAME OF OPERATORS.	LOCATION.	POWER. Engines. a Horse-power. b Water.	a Wool cards. b Cotton cards. c Combs.	a Wool spindles. b Cotton spindles. c Worsted spindles.	a Garnett machine. b Self-actors. c Frames. d Hand mule. e Looms.	GOODS MANUFACTURED.
John Topham,	Branchtown,	1—a 18	a3	a1,500		Wool and mixed carpet yarns.
William Topham,	Howard and Berks streets,	a 15	a2	a800		Woolen yarns.
Tracy Worsted Mills,	2500 Spruce street,	5—a450	c12	c6,340		Fine worsted yarns.
				3,500		
William Wallace,	Wister street, Germantown,	a 20	a2	a984		Wool and mixed yarns.
James Whitaker & Bro.,	Trenton avenue and Sergeant street,	1—a 40	a6	a1,200	b3	Wool carpet yarns.
William Whitaker & Sons,	Adams and Sellers streets, Frankford,	1—a250	b25	b8,000		Worsted and cotton yarns.
			c2	c950		
William Whitaker & Sons,	Forty-seventh and Market streets,	1—a 80	a2	a1,000		Cotton yarns.
			b10	b4,800		
James Whitehead,	Emerald and Sergeant streets,	1—a 25	a2	a650	b1	Cotton carpet yarn.
Joseph Whiteley,	Fisher's lane, Germantown,	1—a 20	a2	a840		Woolen hosiery yarns.
Wilde Brothers,	Manayunk,	a 20	a2	a400		Carpet yarns, (woolen.)
Robert Wilde & Sons,	Manayunk,	a 20	a3	a400		Cotton and woolen carpet yarns.
James Wilson,	Coral and Adams streets,	a 20	a2	a650		Woolen yarns.
J. B. Winpenny & Son,	Main street, Manayunk,	b 80	b26	b6,000		Cotton yarns.
Wolfenden, Shore & Co.,	Haddington, West Philadelphia,	1—a 30	a4	a1,500		Cotton and woolen yarn.
Samuel Wood,	Wakefield street, Germantown,	1—a 20	a2	a1,080		Woolen hosiery yarn.
William Wood,	Germantown avenue and St. John street,	a 10	a2	a650		Woolen yarns.
James Wright,	Hart lane and Emerald street,	a 20	a4	a540	d2	Woolen carpet yarn.
Sarah Yewdall,	Fifty-fourth street and Torr avenue,	1—a100	c3	c1,776		Fine worsted yarns.

SUMMARY OF TEXTILE MANUFACTORIES OF PHILADELPHIA.

Number of establishments,	460	Number of cotton spindles,	185,440
Number of steam engines,	507	Number of silk spindles,	6,800
Number of horse-power,	28,345	Number of flax spindles,	1,000
Number of wool cards,	722	Number of printing machines,	41
Number of wool spindles,	314,371	Number of looms,	22,030
Number of combs,	107	Number of carpet looms,	3,326
Number of worsted spindles,	61,652	Number of hosiery looms,	9,193
Number of cotton cards,	800		

Table showing the characteristics, production, etc., of Textile Fabrics in the State, compiled from reports to the Bureau for the year ended December 31, 1880.

CARPETS AND CARPET YARNS.

Name of Operator.	Number of days in operation during the year.	Total number of persons employed.	Number of stories.	Spindles.	*a* Power-looms. *b* Hand-looms.	*a* Beaming frames. *b* Spooling frames.	*a* Cutting machines. *b* Shearing machines.	Product. *a* Yards of carpet. *b* Pieces of carpet. *c* Pounds of yarn.	Goods Manufactured.
Philadelphia county.									
John Bromley & Son,	303	607	..	2,076	*a*88 *b*183	....	....	*a*620,000	Brussels, ex-supers, Smyrna rugs, and Turcomans. Fire buckets on each floor and 2 chemical annihilators. 3 buildings, 2—4½ stories, 1—2½ stories.
Robert Carson,	300	85	4	..	60	....	....	*a*250,000	Ingrain carpets.
Alex. Crow & Son,	300	307	...	2,200	160	....	....	*a*1,100,000	Brussels, Ingrain, and damask. 2 mills, each 5 stories, 3 other buildings, each 4 stories. Fire escape, 3 stair cases enclosed in brick.
Philip Doerr & Sons,	280	69	4	.....	*b*35	...	....	*a*150,000	Ingrain carpets.
James H. Gay,	308	192	3	.....	*a*86, *b*9	....	....	*a*576,000	Ex-supers Ingrain. Fire escape, stairway built separate of brick outside of mill, extension ladders also.
McCallum, Crease & Sloan,	*	273	4	5,010	78	....	...	*a*286,558 *c*980, 410	Body brussels and ex. sup. Ingrain and woolen and worsted yarns.
S. C. Ridpath,	300	67	3	..	50	....	....	*a*40,000	Ingrain, venetian and cottage carpets.
Montague & White,	308	90	3	1,830	10	....	....	*a*104,000 *c*650,000	Carpets, carpet yarn, and worsted yarn.
R. Alexander & Son,	308	17	3	.....	12	....	....	*a*9,750	Ingrain carpets, (cotton and woolen.)
Samuel Allen,	300	11	1	.....	8	..	....	*a*16,080	Cotton carpets.
Robert Anderson,	308	42	3	11	29	*b*1	....	*a*73,286	Ingrain carpets.
F. & C. Binz,	300	20	3	.....	16	..	....	*b*85,000	Ingrain, Dutch, and cottage carpets.
Thomas Buckley & Son,	308	15	2	.....	10	*b*4	....	*a*47,250	Ingrain carpets.
Thomas R. Burns,	310	12	2	.....	8	*b*3		*a*52,000	Carpets, (cotton and wool.)
Arch. Cameron,	260	27	3	....	21	*a*1	*a*1, *c*2	*a*18,000	Chenille axminster carpets.
Daniel Currie,	275	30	4	.....	20	....	....	*a*93,600	Ingrain carpets.
Gibb & Co.,	308	19	3	..	12	....	....	*a*50,000	Rag carpets.
Gustave Fordtran,	300	14	1	.....	*b*11	...	...	*b*350	Carpets, (cotton and wool.)
Robert McKinney,	300	10	2	.....	6	....	...	*a*32,400	Ingrain carpet.
Herrman Petzoldt,	308	20	3	.....	15	....	...	*a*50,000	Cottage and rag carpets.
Stinson Bros.,	300	118	4	.....	75	...	...	*a*500,000	Carpets and rugs.

* 324 days of 10 hours each.

CARPETS AND CARPET YARNS—*Continued.*

NAME OF OPERATOR.	Number of days in operation during the year.	Total number of persons employed.	Number of stories.	Spindles.	*a* Power-looms. *b* Hand-looms.	*a* Beaming frames. *b* Spooling frames.	*a* Cutting machines. *b* Shearing machines.	PRODUCT. *a* Yards of carpet. *b* Pieces of carpet. *c* Pounds of yarn.	GOODS MANUFACTURED.
A. Thompson,	305	9	2	. . .	7	*b*2	. .	*a*28,720	Ingrain carpet.
William Whitaker & Sons,	308	142	. . .	1,824	*a*40	. . .	. . .	*a*175,200 *c*140,000	Ingrain carpets and yarn.
Spencer C. Black,	260	8	2	. . . . .	12	. . . .	. . . .	*a*20,000	Damask and venetian stair carpet.
William Culbertson,	225	22	3	. . . . .	24	. . . .	. . .	*a*39,000	Ingrain carpet.
James Martin,	300	36	4	. . . . .	25	. . . .	. . . .	*a*136,000	Ingrain carpet.
James Dougherty & Co.,	300	13	2	. . . . .	9	. . . .	. . . .	*a*4,000	Cotton carpet.
William Erskine,	260	23	3	. . . .	*b*16	. . . .	. . . .	*a*62,400	Ingrain carpet.
James Finley,	308	9	2	. . . .	*b*6	. . . .	. . . .	*a*28,080	Cotton and wool ingrain carpets.
Boggs & White,	300	210	4	45	*b*150	. . . .	. . . .	*a*633,100	Ingrain carpets.
William Montgomery,	. . .	8	2	. . . . .	*b*6	. . . .	. . . .	*b*146	Cotton and wool carpets.
James Bole,	258	38	3	. . . . .	*b*30	. . . .	. . . .	*a*148,540	Ingrain carpet.
John Cross,	309	18	4	. . . . .	*b*13	. . . .	. . . .	*a*31,200	Cotton and wool ingrain carpets.
L. Secklnger,	300	17	4	. . . . .	*b*12	. . . .	. . . .	*a*48,750	Cotton and wool ingrain carpets.
J. Winchester & Son,	285	18	3	. . . . .	*b*14	. . .	. . .	*a*56,700	All wool ingrain carpets.
Ivins, Deitz & Magee,	300	209	3	. . . . .	*a*24 *b*125	. . . .	. . . .	*a*605,800	Ingrain carpets and tapestry ingrain, (sole manufacturers of tapestry ingrains.)
Thomas Boyland, agent,	300	12	3	. . . . .	*b*11	. . . .	. . . .	*a*4,000	Cotton carpet.
William Carey,	. . . .	13	2	. . . . .	*b*9	. . .	. . . .	*a*36,960	Ingrain carpet.

NAME OF OPERATOR.	Number of days in operation during the year.	Total number of persons employed.	Number of stories.	a Number of cotton spindles b Number of wool spindles.	a Jacquard looms. b Broad looms. c Other looms.	a Reaming frames. b Spindle winding frames. c Presses.	PRODUCT. a Number of yards, b Number of pounds, c Pieces.	GOODS MANUFACTURED.
Dauphin County.								
Harrisburg Cotton Mill Company,	208	213	3	a8,320	c281	. . .	a2,432,000 b800,000	Brown sheeting, drilling, and batting. Closed September, 1880. Sold to Mr. George Calder, Lancaster, Pa., who took possession Jan. 1, 1881.
Delaware County.								
S. A. Crozier & Son, ...	310	370	. .	a17,500	c433	. . .	a6,606,794	Ginghams, plaids, and checks. Two mills run by steam, 1 mill by water; 1 building 4 stories, 1 building 3 stories, 3 buildings 2 stories, other buildings 1 story. Fire-escape, stairway each end, iron ladders, and platforms outside windows.
R. Patterson & Co., ...	302	259	. . .	a14,088	c300	. . . .	a2,144,462 b364,900	Market yarns, brown drills, and sheetings. Mill, 2 and 3 stories in height. Fire-escape, 2 stairways in projections built for that purpose, and two iron ladders.
D. Trainor & Son, ...	306	297	. .	a30,000	c136	. . . .	a1,162,796 b981,349	Bed tickings and fine yarns. No. 1 mill, 3 stories; Nos. 2 and 3 mills, 2 stories.
J. W. Lewis & Co., ...	308	216	3	a6,280	c300	. . . .	a4,207,517	Checks, cheviots, plaids, and stripes.
Samuel Riddle & Son, ...	289	351	. .	a16,266	c363	. . . .	a4,300,000	Tickings, cheviots, and cottonades. 1 mill 5 stories, 2, 3 stories, 1, 2 stories.
W. & R. T. Turner, ...	160	3	. .	. .	. . . .	. . . .	b13,826	Cotton laps, four cotton cards.
Seliers Hoffman, ...	. . . .	180	4	a10,000	c280	. . . .	. . .	Ginghams, stripes, bedticks, &c.
Henry P. Shimer, ...	154	1	. .	. .	. . .	. . . .	b9,000	Cotton laps, three cotton cards, one willow.
Robert Patterson & Co., ...	313	131	4	7,756	c60	. . . .	a686,400 b303,312	Jeans and dress-goods, and warps and cops for market.
Lancaster County.								
F. Schroder & Co., ...	303	255	4	a10,820	c286	. . . .	a3,556,383	Fine brown sheetings, jeans, and genuine nankeens. Fire-escape--first, 2 towers (brick) separate from mill, with door from each floor. Second, 2 sets ladders, iron railed platform at each story outside of mill.
George Calder, junior, & Co., . .	309	147	1	a3,000	c104	. . . .	a1,716,000	Ducks and drills.
George Calder, junior, ...	308	100	2	a2,000	c91	. . . .	a927,509	Colored ducks and drills.
Montgomery County.								
William Simpson & Sons, ...	310	126	5	a9,500	c228	. . . .	a2,600,000	Print cloths.
Standley Lees, ...	152	172	3	a5,249	c132	. . . .	a5,277,700	Cottonades.
F. D. Farnum & Co., ...	308	151	. .	a3,800	e161	. . . .	a1,291,992	Cotton goods.
J. C. Cresson & Co., ...	298	58	. . .	a1,300	. . .	. . . .	a265,396	Jeans, and cotton warp yarns.
				b720	e42	. . . .	b30,000	
J. W. McDermot, ...	260	47	. . .	a3,100	. . . . .	. . . .	b197,600	Cotton yarns.

COTTON GOODS—*Continued.*

NAME OF OPERATOR.	Number of days in operation during the year.	Total number of persons employed.	Number of stories.	a Number of cotton spindles b Number of wool spindles.	a Jacquard looms. b Broad looms. c Other looms.	a Beaming frames. b Spindle winding frames. c Presses.	PRODUCT. a Number of yards. b Number of pounds. c Pieces.	GOODS MANUFACTURED.
Philadelphia County.								
The A. Campbell Manufac'g Co.,	300	780	7	a22,598	c808	. . .	a8,500,000	Colored cotton goods. Fire-escapes--2 double fire-escapes outside mill.
R. Patterson & Co., ...	309	512	. . .	a17,904	c642	. . . .	a4,797,893	Cottonades and cotton dress-goods. No. 1 mill, 6 stories; No. 2 mill, 5 stories; No. 3 mill, 4 stories.
Atkinson & Foulds, ...	300	54	3	. . . . .	a24, c52	. . . .	a1,140,000	Cotton goods.
Briggs & Bro., ...	300	71	2	a1,398	c60	. . . .	a500,000	Double and twist cottonades.
James Connelly & Sons, ...	300	59	2	. . . . .	c120	. . . .	a1,400,000	Cotton goods.
Robert Dallas, ...	300	44	2	. . . . .	c61	. . .	c15,947	Osnaburgs, cheviots, duck, linseys.
Garsed & Co., ...	306	73	3	. . . . .	c116	a3, b325 c2	a1,204,512	Ginghams, stripes, dress-goods, &c. Six spoolers, callenders, cylinders. Fire-escape at one end of mill, outside.
Henry Landless & Son, ...	264	9	4	. . . . .	c16	. . .	a150,000	Cotton dress-goods.
James Long, Bro. & Co., ...	300	184	4	. . .	c371	. . .	a3,000,000	Checks, ginghams, osnaburgs, &c.
James Nugent, ...	308	23	3	a60	c40	. . .	c1,200	Cotton goods.
Ross Campbell & Co., ...	280	125	3	.	a68, c112	. . . .	a1,741,000	Cotton woven ps. goods.
John Watt & Sons, ...	300	94	4	. .	c170	. . . .	a1,800,000	Cheviots, ginghams, and cottonades.
William Whitaker & Sons, ...	309	215	. .	a10,316	c164	. . . .	a971,607	Ticking.
R. Granlees & Sons, ...	300	132	4	. . . .	c219	. . . .	a1,800,000	Colored cotton goods. Sixty looms, additional rented.
Matthew Murphy, ...	300	21	2	. . . . .	b20	. . . .	a144,000	Elastic fabrics, bindings, &c.
William P. Troth, junior, & Co.,	290	57	3	. . . . .	c110	. . . .	a1,176,000	Cotton dress-goods.
J. Rothwell & Son, ...	300	29	4	. . . . .	c32	.	a200,000	Turkish towels, terry cloths, &c.
J. W. Elliot & Bro., ...	262	32	2	.	c66	a1, b5	a529,200	Ginghams. One splitting machine.
Ogden Bros., ...	300	111	3	a3,000	c78	. . . .	a750,000	Cottonades.
William Clegg, ...	298	38	4	a572	c40	. . . .	a359,603	Cottonades.
Emlen & Co., ...	305	63	4	. . . .	c100	. . . .	a1,200,000	Ginghams, cheviots, skirtings, &c.
Edward Heald, ...	302	169	4	. . . . .	c185	. . .	a2,100,000	Balmoral skirts, ginghams, cottonades. Weaving and finishing only.
James J. Hanson, ...	300	13	4	. . . . .	c20	. . . .	a468,000	Cotton dress-goods.
W. H. & S. Bradbury, junior, . .	306	63	3	. . . . .	a57	. . . .	a180,000	Cotton damask.
E. B. Andrews, ...	290	25	. .	. . . . .	c40	. . . .	c1,150	Cottonades and dress-goods.
John Dallas' Sons, ...	300	116	4	. . . .	198	. . . .	a2,625,000	Cotton dress-goods. Fire-escape, iron ladders and platforms, from roof to ground.
Stephen Wood, ...	308	17	5	. . . . .	c28	. . . .	c6,000	Cotton goods, Turkish toweling.
Fr. Rumpf & Bro., ...	300	61	3	. . . . .	c40	. . . .	c125,000	Bed quilts and shawls.

NAME OF OPERATOR.	Number of days in operation during the year.	Total number of persons employed.	Number of stories.	a Number of cotton spindles. b Number of wool spindles.	SETS. a Cotton cards. b Wool cards.	a Broad looms. b Other looms.	a Beaming frames. b Bobbin frames. c Warp-mill. d Wool picker.	PRODUCT. a Number of yards b Number of pounds. c Number of pieces.	GOODS MANUFACTURED.
Bedford County.									
S. Keagy & Bro.,	308	7	3	240		*a*2, *b*3		*a*6,000 *b*5,000	Satinetts, cassimeres, blankets, &c. Yarn.
Berks County.									
A. J. Brumbach,	294	43	2	1,056		*b*30		*a*163,400	Cassimeres.
J. G. Leinbach & Co.,	308	64	2	1,100		*b*40		*a*400,000	Cotton and woolen goods.
Louis Kraemer & Co.,	301	66	2	1,008	3	*b*56		*a*350,658	Jeans and doe-skins.
Bucks County.									
C. W. & J. Pierce,	300	285	3		8			*c*17,086	Felt cloths, druggets, coating, &c.
Chester County.									
Estate Joseph M. McClure,	305	41	4	1,692		*b*56		*a*600,000	Cotton and wool jeans.
H. Kenworthy,	300	27	4	800		*b*20		*a*150,000	Union cassimeres.
Jarvis Ellis,	310	93	3	720		*b*54		*a*520,000	Beaver Valley buckskins.
Clinton County.									
F. M. Welsh,	154	8	3	336		*b*6		*a*8,708, *b*4,016	Lumbermen's flannel, blankets, &c.
Delaware County.									
Robert Hall & Son,	305	39	2	660	2	*b*44		*a*450,975	Cotton and woolen jeans.
Lilley & Son,	297	98	2	3,048		*b*111		*a*1,170,000	Jeans.
A. Coppock,	305	38	2	1,000		*b*56	*d*1	*a*60,000	Jeans, cotton and woolen. Two sets 60-inch Furbush machines, 1 hard waste breaker, 1 spreader.
Whiteley Bros.,			3	1,500		*b*82		*a*150,000	Cottonades and cotton and woolen. Given up business.
John Maxson, junior,	310	66	2	1,080	*b*3	*b*62		*a*480,000	Mixed cassimeres.
J. Ledward & Son,	300	128	2	sets, 10		*b*144		*a*1,143,035	Jeans, doe-skins, kerseys.
Brannagan & Lamb,	300	68	3	1,780		*b*90		*a*800,000	Kentucky jeans.
Samuel Bancroft,	309	102	4	3,150		*a*35		*a*88,000	Beaver cloths—(three mills.)
Shaw, Esrey & Co., Limited,	306	303	3	7,134	20	*b*330		*a*2,881,000	Jeans, doe-skins, and cassimeres. (Three mills.) Iron ladders for fire escape, at center of each mill.
David S. Brown, junior, & Co.,	312	119	3	1,000		*b*64		*a*180,000	Cassimeres, jeans, and flannels.
G. P. Denis,	310	140	2	2,290	4	*b*44		*a*275,000	Cassimeres. Six gigs, 3 shears, 1 press, 1 rag picker.
Jhon A. Springer,	303	33		720	6	*b*40		*a*457,600	Jeans.

COTTON AND WOOLEN GOODS—*Continued.*

NAME OF OPERATOR.	Number of days in operation during the year.	Total number of persons employed.	Number of stories.	Number of cotton spindles.	Number of wool spindles.	SETS. Cotton cards.	SETS. Wool cards.	Broad looms.	Other looms.	Beaming frames.	Bobbing frames.	Warp-mill	Wool picker.	PRODUCT. Number of yards.	PRODUCT. Number of pounds.	PRODUCT. Number of pieces.	GOODS MANUFACTURED.
Franklin County.																	
J. B. White,	300	10		210					7					4,500			Satinetts, cassimeres, blankets, &c.
Montgomery County.																	
William Watt,	300	69	4	1,632					90					500,000			Cassimeres and jeans.
J. W. Smith,	310	76	4	1,250					82					600,000			Kentucky jeans, doe-skins, and cottonades.
Worrall & Ratcliffe,	297	09		1,552					84					520,000			Kentucky jeans.
Philadelphia County.																	
James Nolan,	309	253	5	3,000					250					2,496,000			Cotton and woolen.
James Leech & Bro.,	283	60	3	900					58					403,724			Jeans and doe-skins.
James H. Kerr,	310	31	4						54					600,000			Cotton and woolen.
Waltzfelder & Lees,	300	80	6						152					1,754,700			Checks, linseys, ginghams, &c.
John Scanlan & Son,	300	77	3						120					1,500,000			Cotton and woolen goods.
Charles Crankshaw,	300	25	2	432		3			22				1	197,400			Jeans, cotton and wool.
Bardsley & Craven,	303	151	1	1,728					110					1,000,000			Ladies' dress goods and coat lining.
Campbell & Elliott,	303	438	*	5,000		10			486	11, 7,			22	1,417,740			Flannels, ginghams, checks, &c. *Weaving-mill, 3 stories; spinning-mill, 4 stories. Also, run 8 months at night, making 192 nights. Three Leonard's patent fire escapes outside, 4 escapes from inside.
John Culbertson & Son,	300	111	5						174					1,600,000			Cotton, woolen, and mixed cloths.
H. & D. Henry,		150	3	2,000					135					2,000,000			Flannels.
Sheppers Bros,	265	750	5	4,000				95,	220					2,580,000			Dress goods and coatings. Dye-house, 2 stories; 4 fire escapes outside.
John Smith,	311	25	3						20					1,000			Cotton and woolen goods and "all" wool.
John Brown's Sons,	300	283	4					88,	200					2,000,000			Cassimeres. Fire escape—iron stairways, ladders, &c.
Beswick & Kershaw,	310	23	5						32	1,	2,		1	250,000			Cotton cassimeres—(1 spooling frame.)
W. J. Dickey & Sons,	296	194	4	3,072					195					1,856,811			Cotton and woolen goods.
John G. Carruth,	300	99							42					1,704,000			Cotton and woolen goods.
B. W. Greer & Hetzel,	308	53	3						72		2,	3		870,000			Flannels, cottonades, dress goods, &c.—(2 spooling frames.)
Union County.																	
M. Halfpenny & Co.,	286	47	2	1,536					18					61,530			6-4 fancy cassimeres.

HOSIERY AND KNIT GOODS.

NAME OF OPERATOR.	Number of days in operation during the year.	Total number of persons employed.	Number of stories.	a Number of cotton spindles. b Number of wool spindles.	a Broad looms. b Other looms.	a Cotton cards, sets. b Wool cards, sets.	a Circular heads. b Balmorals. c Other knitting machines.	a Rib-top frames. b Hosiery frames. c Other frames.	a Sewing machines b Winding machines and spindles. c Presses.	PRODUCT. a Number of yards. b Number of dozen. c Number of pounds.	GOODS MANUFACTURED.
Bucks county.											
Thomas Hughes & Co.,	296	348		a840 b720		a3 b2	e400			b321,800	Hosiery. Main mill, 2 stories in height; stone L, 2 stories in height; separate store building, 2 stories in height; outside building, 1 story in height. Fire-escape, 3 outside stairways to main building; 2 stairways each to the other buildings, (outside.)
Delaware county.											
Clarence Larkin,	296	98	3				a56 b12	a17 c16	a18 b7, e4	b94,121	Hosiery. All cotton goods. Outside fire-escape ladders.
Luzerne county.											
Ellethorp & Co., (Limited,)	300	101	3	a960		a4				b14,319	Knitted shirts and drawers.
Philadelphia county.											
Joseph Thurman, junior, & Son,	308	37	4				c24				Fancy knit goods and hosiery.
Charles Spencer & Co.,	305	559	4	4,000	a41			b55 e60		a122,771 b180,000 c368,689	Woolen and worsted cloths, shawls, hosiery, yarns, and knit goods. Three Leonard fire-escapes, iron ladders, and platforms on each story. Three 4-inch stand-pipes, each with two jets of hose, on each story.
E. Birehall's Sons,	200	35	3		b11			e9		e25,000	Fancy woolens.
Thomas Mottram,	250	34	2				e16			b1,000	Knit jackets.
James Brown,		2			b1					b1,500	Pulse-warmers.
Thomas H. Campion,	290	88	3							b75,000	Hosiery.
Clark & Beatty,	285	140								b60,000	Hosiery.
Edward Gamble,	308	70								b75,000	Hosiery.
Joseph D. McKee,	300	255	4		a60					b60,000	Shawls, nublas, coats, hoods, scarfs, &c.
Pearce & Landenberger,	275	265	4				a144 b24		b38 c9	b250,000	Children's, misses', ladies', and men's hose. Fire-escape. Inside iron staircase.
Schofield & Branson,	300	457	5	a3,168						b500,000	Hosiery. Iron fire-escape from fifth floor to ground, by patent ladders.
William Vernon & Co.,	260	229	4							b150,000	Men's ½ hose, ladies' and misses' hose, plain and fancy.
Vickers & Weston,	305	145	5					a9	a40 b168, c4	b100,006	Hosiery. 360 feeders on balmoral hosiery frames.
Alfred Vezin,	300	333	3	a2,100						b170,000	Cotton yarn and cotton hosiery.
Samuel West,	200	40	3								Hosiery.

HOSIERY AND MIXED GOODS—*Continued.*

NAME OF OPERATOR.	Number of days in operation during the year.	Total number of persons employed.	Number of stories.	a Number of cotton spindles. b Number of wool spindles	a Broad looms. b Other looms.	a Cotton cards, sets. b Wool cards, sets.	a Circular heads. b Balmorals. c Other knitting machines	a Rib-top frames. b Hosiery frames. c Other frames.	a Sewing machines. b Winding machines and spindles. c Presses.	PRODUCT. a Number of yards. b Number of dozen. c Number of pounds.	GOODS MANUFACTURED.
William Bonsor,	...	13	2½	....	...	...	c13	....	.....	.....	Ringwood gloves, (woolen.)
McKinley, Horne & Co.,	..	..	...	....	...	...	....	....	.....	b25,000	Hand-knit woolen goods and lace.
John Noone,	308	15	...	....	...	...	....	....	.....	.....	Children's hose, cotton and wool. Value, $5,000 per annum.
John G. Powell,	...	268	...	....	...	...	c150	....	...	....	Cotton and woolen hosiery. 150,000 pounds yarn used. Contract work.
James Bannister,	308	30	3	....	...	...	a20b20	....	.....	.....	Plain and fancy hosiery.
John Why,	260	19	1	....	...	...	c7	....	b1	.....	Cardigan jackets, mittens, &c. Use 15,000 pounds yarn.
John R. Bill & Brothers,	240	10	2	..	...	...	....	....	.....	b13,000	Plain and fancy hosiery, (all cotton.)
Ambrose West,	308	67		....	...	...	....	....	.....	.....	Cardigan jackets, gloves, and hosiery. 75,000 pounds cotton, and 10.000 pounds wool yarn used in manufacturing.
John Patterson,	304	25	3	....	...	...	a4	a1	b2	b9,600	Ladies' hose.
Willcox & Armstrong,	300	36	1	....	...	...	....	....	.....	c50,000	Hosiery and knit goods.
George Brambley,	154	..	..	.....	...	...	c4	....	.....	.....	Gloves and jackets.
George Marshall,	250	15	2	....	b4	...	....	....	.....	b2,300	Fancy knit goods, shawls, &c.
Lewis S. Cox & Co.,	270	266	3	....	...	...	a300	....	.....	b70,000	Children's and women's hose.
Gunn & Johnson,	230	351	3	....	22	...	...	..	.....	b200,000	Plain and fancy cotton and wool hosiery.
James Hogg,	300	55	..	....	...	..	....	b24	.....	b40,000	Woolen and cotton hosiery.
William Wrightson,	290	50	4	....	...	...	....	b18	.....	b56,000	Hosiery.
Boaz Phillips,	300	24	2	.....	..	...	c11	....	.....	b8,000	Gloves, mitts, cuffs, and jackets.
M. J. Brown & Brother,	250	30	2	....	17	..	....	...	.....	b15,000	Cotton hosiery.
William Shingle,	280	2	.	....	...	...	....	c2	.....	b350	Woolen gloves.
C. A. Thudium & Son,	308	280	5	....	...	...	...	....	.....	..	Cardigan jackets, shetland shawls, &c.
John Ballantyne,	330	56	3	...	...	...	c33	....	a10, b3	c135,000	Hosiery.
William Sullivan & Co.,	230	81	3	....	...	...	a124	a11	a14	b75,000	Hosiery.
							b4	c5	b5, c3		
Edward Noon & Son,	308	27	2	....	18	..	....	....	.....	b40,000	Hosiery.
Techner & Frank,	200	1,002	.	....	...	...	....	....	.....	.....	Hand-knit worsted goods. 45,000 pounds worsted and wool yarn used. Employ 60 hands in factory, and balance of work taken to home of employees.
Kaye & Byrom,	300	23	2	....	b20	..	....	....	....	c30,000	Shawls and fancy knit woolens.
Green Brothers,	170	26	2	....	...	...	a24	a3, c5	a4, b2	b4,000	½ Hose.

NAME OF OPERATOR.	Number of days in operation during the year.	Total number of persons employed.	Number of stories.	LOOMS. a Hand. b Power.	Spindles.	Power spinning-wheels.	Hand spinning-wheels.	MACHINES. a Spooling. b Warping. c Winding. d Covering. e Cord f Chenille. g Sewing. h Press'g & crimp'g. i Finishing.	PRODUCT. a Number of yards. b Number of pounds. c Number of pieces.	GOODS MANUFACTURED.
Philadelphia county.										
Aub, Hackenburg & Co.,	302	63	4		3,748				*b*15,540	Machine and sewing silks. Outside iron fire escape to each floor.
John Sidebotham,		14	3	16					20,000	Gross, bindings, tapes, &c.
Noah Barlow,	302	14	2	10				*a*2, *b*1, *c*1, *i*1	*a*33,280	Spun and raw silks, cotton, and union terries.
Henry T. Freyer,	231	9	4	*a*4, *b*2						Tassels, fringe, buttons, cords, &c.
J. C. Graham,	307	262	5	*a*8, *b*34					$170,000	Dress, undertakers, and furniture fringe, trimmings, &c. In case of fire No. 1 mill has iron stairway throughout, No. 2 mill has iron fire escape to each story.
James Wilson,	308	60	3	50						Tape and bindings.
William Colcman,	307	19	3	3					$12,000	Tassels, fringes, gimp, and cords.
E. H. Godshalk,	290	328	4	90					*a*812,610	Ladies' dress trimmings, fringes, &c., (silk.)
Jenkins & Avery,	309	50	3	15		6	4	*e*2		Upholstery trimmings, have also large variety of hand-machines not mentioned.
Kaufman, Strouse & Co.,	286	200	5	45				*a*5, *e*10, *f* 4, *h*10	*b*34,000	Ties, ribbons, fringes, and dress trimming. 1 chenille cutter and 20 to 25 other machines necessary to feed looms.
F. W. Maurer & Son,	305	48	4	*a*14						Upholstery trimmings.
				*b*9					$40,000	Warp mills, (twisting and spinning machines.)
Fair Hill Manufacturing Co.,	300	73	3	15						Military goods, dress, and upholstery trimmings.
Woelpper & Bro.,	288	65	3	12	96	3		*a*4, *d*6, *e*8	$43,768	Cords, tassels, gimps, and fringes.
G. W. Flavell & Bro.,	311	14	2	8				*d*1, *g*2	*c*2,200	Stockings, knee caps, belts, &c.
W. H. Horstmann & Sons,	308	353	6	*a*55					$350,000	Upholstery, carriage, blind, and shade.
				*b*117				*e*80		Coffin, ladies' dress, and military trimmings, such as cords, tassels, fringes, bindings, braids, epaulets, &c., also sundry trimmings as watchguards, ribbons, neckties, scarf, or flags. (silk and bunting.) Machinery not mentioned in schedule, viz: 275 braiding machines, 2 sets silk machinery for spinning silk threads. In case of fire 2 stairways each 5 feet wide. Main stairway of iron and stone inclosed by brick wall, doors encased in iron from each room leading to it.
Kemper & McAuliffe,	240	23	4	11					*c*3,000	Fringes and cord, (silk.)
C. Walliser,	313	8		*a*5, *b*2				*a*4, *b*1, *e*2, *f* 3		Fringes, tassels, &c.

WOOL HATS.

NAME OF OPERATOR.	Number of days in operation during the year.	Total number of persons employed.	Sets wool cards.	Product—dozen.	GOODS MANUFACTURED.
Berks county.					
J. H. Spatz & Co.,	276	15	2	9,936	Wool hats.
Jacob Kessler,	240	20	2	7,200	Wool hats.
D. F. Lotz & Co.,	288	30	2	9,330	Wool hats.
Worly, Ruth & Co.,	261	17	2	9,604	Wool hats.
John K. Ruth,	240	33	2	18,516	Wool hats.
John Stieff & Brother,	260	27	4	7,000	Wool hats.
W. H. Reinoehle & Co.,	288	67	3	20,876	Wool hats.
Hendell Bros. & Sons,	290	150	8	$210,000	Wool hats.
Lancaster county.					
J. Lutz & Son,	200	30	2	$19,000	Wool hats.

WOOLEN GOODS.

Name of Operator.	Number of days in operation during the year.	Total number of persons employed.	Number of stories.	a Number of cotton spindles. b Number of wool spindles.	SETS. a Cotton cards. b Wool cards.	a Power looms. b Broad looms. c Other looms.	a Spooling frame. b Winding frame. c Twister. d Press.	a Knitting machine. b Shearing machine.	PRODUCT. a Number of yards. b Number of pounds. c Number of pieces. d Number of dozens.	Goods Manufactured.
Armstrong County.										
W. F. Rumberger & Sons,	133	21	2	960	. . . .	e20	. . . . .	. . .	a47,000 b15,000	Plain, plaid, and scarlet flannel, and knitting yarn.
Graff & Firth,	260	38	3	948	. . .	b2 c11	. . . . .	. . .	a130,000 b15,000	Cassimeres, flannels, blankets, and stocking yarn.
William Gillis,	180	2	2	145	. . . .	c2	. . . . .	. . .	a100, b2,000	Blankets and stocking yarn. Roll carding, 2,000 pounds. Custom work principally.
Beaver County.										
Thomas Clarkson,	300	18	3	552	. . . .	c8	e1	. .	b6,000, c250	Blankets, flannel, and yarn; 1,200 pairs blankets.
Bedford County.										
J. E. Noble,	280	11	3	240	. . . .	c7	. . . . .	. . .	. . . . .	Blankets, flannels, cassimeres, and yarns.
Bradford County.										
Joseph Haigh,	240	4	3	160	. . . .	c2	. . . . .	. . .	a6,200 b1,000	Flannels and yarns. Roll carding, 3,000 pounds.
Clinton County.										
J. F. Rich & Sons,	261	11	3	312	. . . .	c5	. . . . .	. . .	a20,000	Flannels, blankets, yarn socks, &c.
Columbia County.										
C. L. Sands,	224	9	4	200	. . . .	c4	. . . . .	. . .	a3,000	Cloth, blankets, flannels, yarn.
Crawford County.										
H. Lamb,	200	5	2	200	1	c3	c1	. . .	a3,600 b1,500	Flannels and cassimeres, stocking yarn. Machinery not in schedule—1 roll card, 2 wool pickers and finishing machine.
Delaware County.										
Wolfenden, Shore & Co.,	292	275	. .	5,600	. . . .	c146	. . . . .	. . .	a1,181,000 b195,000	Cotton and wool mixed kersey, cassimeres, tweeds, and stocking yarn.
A. Osborne & Sons,	306	96	3	7,300	. . . .	c100	. . . . .	. . .	a667,878	Doe-skins, twills, cassimeres, &c.
Erie County.										
T. Thornton & Sons,	180	8	2	200	. . . .	c2	. . . . .	. . .	a3,000 b1,500	Cloths, flannels, and yarns.
Fulton County.										
Benjamin Fisher,	200	3	3	192	. . . .	a3, b1	. . . . .	. . .	a1,600, a150* b1,700	Cassimeres, satinets, flannel, *carpet, 50 blankets, yarn.

WOOLEN GOODS—*Continued.*

NAME OF OPERATOR.	Number of days in operation during the year.	Total number of persons employed.	Number of stories.	a Number of cotton spindles b Number of wool spindles	SETS. a Cotton cards. b Wool cards.	a Power looms. b Broad looms. c Other looms.	a Spooling frame. b Winding frame. c Twister. d Press.	a Knitting machine. b Shearing machine.	PRODUCT. a Number of yards. b Number of pounds. c Number of pieces. d Number of dozens.	GOODS MANUFACTURED.
Indiana County.										
George B. Greaves, ...	240	13	3	240	. . . .	c5	. . . . .	a3	a18,000 b10,000, d1,500	Flannel, blankets, socks, and yarns. Country carding, 3,600 pounds.
Fiscus & Cook, ...	. . . .	. .	. .	130	. . . .	c2	. . . .	. .	a1,000 b1,500	Cloths, flannel, blankets, and yarns.
Lackawanna County.										
Jasper Shoemaker, ...	250	10	3	240	. . . .	c2	. . . . .	. . .	a10,000 b5,000	Flannel and tweeds. Yarn.
Lancaster County.										
William Hill, ...	. . .	5	. . .	200	. . . .	c4	. . . . .	. . .	. . . . .	Satinets, cloth, blankets, and yarns. Custom mill.
Lycoming County.										
Youngman, Caswell & Co., . .	300	37	3	1,224	. . . .	b12	. . . . .	. . .	a161,000	Cassimeres, flannel, blankets, and yarns.
W. & C. Standon, ...	200	29	3	600	. . . .	c8	. . . . .	.	. . . . .	Cassimeres, flannel, blankets, and yarns. Use 35,000 pounds wool.
Mifflin County.										
J. Wilson & Co., ...	231	13	4	620	. . . .	c6	. . . . .	. . .	. . . . .	Cassimeres, flannel, blankets, satinets, yarns.
Philadelphia County.										
D. Wallace & Son, ...	302	89	4	a2,244 b1,198	. . . .	c80	. . . . .	. . .	a500,000 b150,000	Kentucky jeans. Cotton yarns.
August Lessig & Son, ...	290	17	3	. . .	. . . .	c12	. . . . .	. . .	c20,800	Bed coverlets.
Henry Marshall, ...	260	23	2	. . . .	. . . .	c12	a1, b1, d1	. . .	c37,750	Large shawls and misses' shawls.
William F. Read, ...	310	50	3	. . . .	. . . .	c68	. . . . .	. . .	. . .	Alpaca for umbrellas.
Thomas H. Wilson, ...	300	90	2	. . .	. .	c52	. . . . .	. . .	a130,000	Shawls.
M. G. Keatley, ...	250	7	2	234	. . .	c6	. . . . .	. . .	b8,000	Flannels, carpets, blankets, &c.
David S. Brown, junior, & Co.	300	193	3	2,086	. . . .	c145	. . . . .	. .	a831,411 c148,320	Doe-skins, jeans, tweeds, &c. Shawls.
Sullivan County.										
John H. Osler & Son, ...	160	5	3	240	1	c3	a1	b1	b2,000	Flannels, yarn. One custom roll card.
Tioga County.										
J. S. Ingham, ...	250	5	2	220	. . . .	c3	. . . . .	. . .	a3,500, b300	Cassimeres, doe-skins, flannels, stocking yarn.

YARNS.

Name of Operator.	Number of days in operation during the year.	Total number of persons employed.	Number of stories.	a Woolen spindles. b Worsted spindles. c Cotton spindles.	SETS. a Cotton Cards. b Wool cards.	a Drawing frame. b Roll machine. c Comber.	a Picker. b Reel. c Self-acting mules.	PRODUCT. a lbs. worsted yarn. b lbs. woolen yarn. c lbs. cotton yarn.	Goods Manufactured.
Armstrong County.									
Isaac Kinnard & Son,	106	2	1	160				b1,199	Custom carding and spinning. 1,636 lbs. wool carded into rolls.
Isabella Cooper,	100	7	2	90		b1	a1	b3,000	Woolen yarn.
Bucks County.									
Jacob Barlow,	310	26		2,040					Cotton warps and yarns. Value, $50,253 98.
Grundy Bro. & Campion,	310	280	2	b3,336	8	a4, c7		a600,000	Worsted yarns.
Joshua Whiteley,	294	44	4	4,000				c221,760	Cotton yarn.
Chester County.									
James Lund,		108	4	b1,675				a208,000	Worsted yarns—combing, drawing, and spinning. Destroyed by fire, September 16, 1880. Re-building.
Delaware County.									
James Barton,	404	36	3	c4,596				c343,400	Cotton yarn. Weaving room leased. 404 days includes over time.
The Irving & Leiper Man'g Co.	309	104	3	c12,000				c1,100,000	Cotton yarn. Fire-escape ladders on each side of mill.
Simeon Cotton,	309	34	2	c2,856				c284,198	Cotton warps. Fire-escape ladders on outside of mill.
J. & T. Byrnes,	290	16	3	1,272	b3			95,000	Cotton and woolen yarn.
James M. Stotesbury,	310	37	1	c3,264				c365,000	Cotton yarn.
William Arrott,	300	75	2	4,900				400,000	Cotton and woolen yarns.
Fulton County.									
Benjamin Greenland & Son,	144		3	a160				3,000	Yarn and rolls. Two looms—custom roll-carding, and spinning.
Luzerne County.									
J. C. Shoemaker's Sons,	60	4	1	a444				b3,000	Woolen yarns. Five looms not running.
Montgomery County.									
J. & J. Hunter,		100		c15,136					Cotton yarn. 658 looms not in use. Have not been running a year.
Hamilton Maxwell,	290	45		c3,564				c312,000	Cotton warp yarns.
Seth Humphreys,	308	36		920	14			525,000	Double reel cotton, and shoddy yarn for carpets.
Philadelphia County.									
The Tracy Worsted Mills Company, (Limited,)	308	414	1	b9,690				a774,100	Worsted yarns.

YARNS—*Continued.*

NAME OF OPERATOR.	Number of days in operation during the year.	Total number of persons employed.	Number of stories.	SETS. a Woolen spindles. b Worsted spindles. c Cotton spindles.	SETS. a Cotton cards. b Wool cards.	SETS. a Drawing frame. b Roll machine. c Comber.	SETS. a Picker. b Reel. c Self-acting mules.	PRODUCT. a lbs worsted yarn. b lbs woolen yarn. c lbs. cotton yarn.	GOODS MANUFACTURED.
Rice & Bean,	300	28	3	c2,500				c250,000	Cotton yarn. Stone staircase outside of mill, in case of fire.
Robert Beatty,	305	59	4	6,300				750,000	Hosiery yarns.
O. F. Holt,	300	23	3	1,500				232,500	Woolen spun yarn, (cotton and wool mixed.)
Joseph Fling,	300	23	3	1,764	b4		c4	180,000	Cotton, merino, and woolen yarn for hosiery.
Robert Mortimer & Son,	300	20	2	1,592	b3		c3	160,000	Cotton and woolen yarns.
Garsed & Co.,	300	240	1	c15,500				c1,549.745	Cotton yarns, No. 7 to 28.
J. Randall & Bros.,	283	44	2	2,068				186,300	Cotton, woolen, and merino yarns.
John F. Lodge,	300	31	2	960				150,000	Carpet yarns.
James Whitehead,	280	21	2	c800				c420,000	Cotton carpet yarn.
David Hey,	180	37	2	720	12			360,000	Coarse grey carpet yarn.
Fiss, Banes, Erben & Co.,	321	318		a2,172 b10,510				a590,554 b226,219	Worsted and woolen yarns. Main building, 3 stories high, two wings, 4 stories. Overtime is included in the 321 days worked. Fire-escape, outside ladders connecting roofs of different buildings with one another.
Schofield, Mason & Co.,	308	131	4	3,600	7	c3		600,000	Worsted and woolen yarns.
Joseph W. Adams,	244	16	5	324				360,000	Carpet yarns.
William Craven,	300	94	4	1,680				a200,000	Worsted yarns.
J. Dalton & Bro.,	196	28	3	a1,360				b100,000	Woolen yarns. Running seven months.
William Emsley & Bro.,	345	49	3	3,100	b6			450,000	Woolen, cotton, and merino yarn.
James & Davenport,	300	15	3	900	b2		a1, b3	243,000	Woolen, merino, balmoral, and carpet yarns.
William Johnson,	305	54	2		8		a3	b609,570	All grades woolen shoddies. One Custer, and 3 Garnet machines.
George T. Jones,	300	42	4	a2,440				b200,000	Woolen yarns.
Richard Kershaw,	307	101	4	b2,600				a220,000	Worsted yarns.
Robert A. Lees,	300	4	1					15,000	Shoddy.
Joshua Madeley,	308	17	3	2,206				260,000	Hosiery yarn.
Shaffner & Stringfellow,	300	33	2	936				160,000	Germantown woolen yarn and knitting cotton. Four balling machines for balling knitting cotton.
Charles Shaw, Senior,	302	17	2	1,160				130,000	Woolen, cotton, and merino yarns.
Stead Brothers,	300	46	5	2,840				450,000	Hosiery yarns. Iron escape ladders.
B. L. Stokes,	302	70	4	2,500				a150,000	Worsted yarns. Iron escape ladders.
John Topham,	309	17	4	1,710					Spin yarn on commission.
William Walton & Co.,	350	17	4	966	b2			90,000	Woolen, merino, and cotton yarns. Fire escape—iron ladders.
James Whiteley,	229	10	3	810				b33,920 c16,165	Cotton and wool yarns.

James Wright,	300	26	2	640				624,000	Mixed yarns.
Joseph W. Hilton,		22	3	1,340					Cotton and woolen machinery, 2 sets woolen machinery and spinning to follow—average 600 pounds per day when running full.
John Brown's Sons,	300	140	4	a4,500				b1,250,000	Woolen yarns. Fire escape—iron stairway, ladders, &c.
Byrom Brierley,	308	23	3	a954				b93,600	Woolen yarn.
William Thornton,	276	21	4	350				276,086	Carpet yarn.
Taylor Bros. & Co,	309	31	5	3,238				350,000	Cotton and woolen yarn.
Jaggers & Jones,	309	30	5	2,500				b60,000 c40,000	Cotton and woolen yarn.
D. Crowther & Son,	308	28	3	2,400				162,000	Woolen and cotton yarn.
William Johnson,	300	37	3	875				480,000	Carpet yarns.
William Scholes & Son,		29		a1,320				b260,000	Carpet and hosiery yarns.
Kelley & Wilhere,	308	28	5	1,200				36,400	Cotton, woolen, and hosiery yarns.
Jonathan Ring & Son,	300	50	4	2,764	b4			b350,000	Fine woolen yarns. In case of fire have fire proof (iron and brick stairway) outside and two elevators, one outside and one inside.
Taylor Bros.,	308	5	3					30,000	Cotton and wool shoddy.
S. B. & M. Fleisher,	308	200	3					a280,602	Worsted yarn.
								72,304 7,424	Dozen of pieces. } Braid. Gross. }

RECAPITULATION.

Total number of establishments,	286	Cotton and wool cards,	177
Total number of persons employed,	26,644	Power, jacquard, hand, and other looms,	15,332
Woolen and worsted spindles,	187,374	Circular heads, balmorals, and other knitting machines,	1,753
Cotton spindles,	288,851	Rib top, hosiery, and other frames,	235
Silk spindles,	3,844	Spooling, warping, sewing, and other machines and frames,	1,108

TOTAL PRODUCTION.

Carpets, yards,	6,612,574	Wool hats, dozen,	82,462
Carpet yarns, pounds,	1,770,906	Wool hats,	$229,000
Cotton goods, yards,	73,851,764	Woolen goods, yards,	3,588,439
Cotton goods, pieces,	149,297	Woolen goods, pieces,	337,120
Cotton batting, cops, etc., pounds,	2,472,387	Woolen yarns, pounds,	450,560
Cotton and woolen goods, yards,	37,550,781	Woolen roll carding, pounds,	8,600
Cotton and woolen goods, pieces,	18,086	Woolen socks, dozen,	1,500
Cotton and woolen yarns, pounds,	9 016	Woolen blankets, pieces,	1,250
Hosiery and knit goods, yards,	122,771	Worsted braid, dozen pieces,	72,304
Do. do. pounds,	904,689	Worsted braid, gross,	7,424
Do. do. dozen,	8,875,990	Yarns, cotton, pounds,	2,305,910
Do. do.	$5,000	Yarns, cotton and wool, pounds,	2,188,700
Silk and silk mixed goods, yards,	845,890	Yarns, hosiery, pounds,	1,640,000
Do. do. pieces,	5,200	Yarns, woolen, pounds,	5,435,325
Do. do. pounds,	49,540	Yarns, worsted, pounds,	2,215,256
Do. do. gross,	20,000	Yarns, shoddy, pounds,	654,570
Do. do.	$615,768		

COTTON MANUFACTURE—TENTH CENSUS OF THE UNITED STATES.

Preliminary report upon the Specific Cotton Manufacture of the United States, exhibiting the number of looms, spindles, the number of bales of cotton consumed, and the number of operatives employed, as reported by Edward Atkinson, of Boston, Massachusetts, Special Agent of the Tenth Census on Cotton Manufacture.

STATES.	Number of looms.	Number of spindles.	Number of bales of cotton used.	Persons employed, including agents, overseers, clerks, mechanics, watchmen, and operatives.
The United States, .	230,223	10,921,147	1,586,481	181,628
Alabama, ...	1,060	55,072	14,887	1,600
Arkansas, ...	28	2,015	720	64
Connecticut, ...	18,036	931,538	107,877	15,497
Delaware, ...	823	48,858	7,512	695
Florida, ...	. . . . .	816	350	33
Georgia, ...	4,713	200,974	67,874	6,678
Illinois, ...	24	4,860	2,261	281
Indiana, ...	776	33,396	11,558	720
Kentucky, ...	73	9,022	4,215	359
Louisiana, ...	120	6,096	1,354	108
Maine, ...	15,978	696,685	112,361	11,318
Maryland, ...	2,325	125,014	46,947	4,159
Massachusetts, . . .	94,788	4,465,290	578,590	62,794
Michigan, ...	131	12,120	600	208
Mississippi, ...	704	26,172	6,411	748
Missouri, ...	341	19,312	6,399	515
New Hampshire, . .	25,487	1,008,521	172,746	16,657
New Jersey, ...	3,344	232,305	20,569	4,658
New York, ...	12,822	578,512	70,014	10,710
North Carolina, . .	1,960	102,767	27,508	3,428
Ohio, ...	42	4,328	10,597	563
Pennsylvania, . . .	10,541	446,379	86,355	11,871
Rhode Island, .	30,274	1,649,295	161,694	22,228
South Carolina, .	1,776	92,788	33,099	2,195
Tennessee, ...	1,063	46,268	11,699	1,312
Texas, ...	71	2,648	246	71
Utah, ...	14	432	. . . .	29
Vermont, ...	1,180	55,088	7,404	735
Virginia, ...	1,324	44,336	11,461	1,112
Wisconsin, ...	400	10,240	3,173	282

NOTE.—The above does not include the hosiery mills, or any of the mills known as woolen mills, where cotton may be a component material used in the manufacture.

The following is the preliminary report upon the silk manufacture of the United States, as reported by William C. Wyckoff, of New York, Special Agent of the Tenth Census on Silk manufactures.

TABLE 1.—*Exhibiting summary of Silk Productions. Finished Goods for the year ended June 30, 1880.*

United States,	$34,410,463
Sewing silk,	$776,120
Machine twist,	6,000,265
Floss silk,	219,250
Dress goods,	4,115,205
Satins,	1,101,875
Tie silks and scarfs,	606,675
Millinery silks,	891,955
Other broad goods,	627,595
Handkerchiefs,	3.862,550
Ribbons,	5,955,005
Laces,	437,000
Braids and bindings,	999,685
Fringes and dress trimmings,	4,950,275
Cords, tassels, passementeries, and millinery trimmings,	1,866,575
Upholstery and military trimmings,	1,392,355
Coach laces and carriage trimmings,	37,510
Undertakers', hatters', and fur trimmings,	59,805
Mixed goods, and silk values therein,	510,763

TABLE 2.—*Exhibiting the number of factories in the United States, with the capital invested, and the number of looms used in manufacturing.*

STATES.	Number of factories whose reports are included.	Capital, (real and personal,) invested in the business.	Number of looms.
United States,	383	$18,899,500	8,467
California,	5	$164,300	24
Connecticut,	28	4,436,500	615
Illinois,	5	82,000	64
Kansas,	1	9,500	
Maine,	1	30,000	
Maryland,	4	20,900	39
Massachusetts,	22	1,306,100	241
Missouri,	1	4,000	2
New Hampshire,	1	8,000	
New Jersey,	108	6,952,325	4,531
New York,	150	4,471,775	2,101
Ohio,	6	24,700	19
Pennsylvania,	49	1,379,900	831
Rhode Island,	1	7,500	
Vermont,	1	2,000	

TABLE 3.—*Exhibiting gross value of Materials and Products with cost of refinishing, also the net value of finished products.*

STATE.	Gross value of material and supplies.	Gross value of manufactured products.	Silk products twice included in foregoing column, *i. e.*, partial products.	Net value of manufactured products, *i. e.*, value of finished goods.
United States,	$22,371,300	$40,975,285	$6,564,822	$34,410,463
California,	$80,995	$159,175	$28,470	$130,705
Connecticut,	3,311,205	5,881,000	442,925	5,438,075
Illinois,	125,895	286,390	52,000	234,390
Kansas,	150	540	. . . . .	540
Maine,	61,395	81,585	50,485	31,100
Maryland,	15,760	35,415	. . . . .	35,415
Massachusetts,	1,990,515	3,764,260	273,167	3,491,093
Missouri,	630	2,500	. . . . .	2,500
New Hampshire,	11,625	15,000	6,300	8,700
New Jersey,	9,692,135	17,122,230	4,271,185	12,851,045
New York,	5,221,805	10,070,140	801,615	9,268,525
Ohio,	19,495	53,110	. . . . .	53,110
Pennsylvania,	1,830,985	3,491,840	638,675	2,853,165
Rhode Island,	7,500	10,000	. . . . .	10,000
Vermont,	1,210	2,100	. . . . .	2,100

TABLE 4.—*Exhibiting the number of hands employed and the total amount of wages paid during the census year.*

STATE.	Greatest No. of hands employed at any one time during the year.	REPORT'D AVERAGE NO. OF HANDS EMPLOYED.			Total amount paid in wages during the year.
		Males above 16 years.	Females above 15 years.	Children & youths.	
United States,	34,440	9,350	16,344	5,605	$9,107,835
California,	185	20	106	25	$41,400
Connecticut,	3,766	787	1,990	653	1,026,530
Illinois,	322	39	156	51	56,330
Kansas,	2	1	. . .	1	250
Maine,	60	9	46	5	10,190
Maryland,	82	12	56	14	11,000
Massachusetts,	2,068	353	1,275	188	521,720
Missouri,	5	3	2	. . . .	750
New Hampshire,	13	2	5	1	2,500
New Jersey,	13,932	4,696	5,360	2,508	4,047,745
New York,	10,484	2,406	5,396	1,799	2,697,025
Ohio,	142	21	73	41	12,550
Pennsylvania,	3,360	1,000	1,870	319	678,120
Rhode Island,	15	1	7	. . .	1,600
Vermont,	4	. . . .	2	. . . .	125

TABLE 5.—*Exhibiting statistics of Silk manufactured in counties producing goods to the value of $1,000,000 annually.*

STATE AND COUNTY.	Number of factories reported.	Capital (real and personal) invested in the business.	Number of looms.	Gross value of manufactured products.	Net value of manufactured products—*i.e.* value of finished goods.	Total amount paid in wages during the year.
United States, ...	290	$15,394,700	7,473	$33,008,355	$27,716,035	$7,651,630
Connecticut.						
Hartford county, ...	3	$3,215,000	549	$2,709,590	$2,571,820	$638,760
Tolland county, ...	9	560,000	37	1,627,145	1,443,060	168,360
Massachusetts.						
Hampshire county, . . .	4	437,400	. . .	1,457,300	1,416,600	203,625
New Jersey.						
Hudson county, ...	17	753,300	1,060	2,045,000	2,028,400	485,560
Passaic county, ...	83	5,660,525	3,238	14,164,465	10,003,905	3,335,045
New York.						
New York county, . . .	127	3,454,575	1,820	7,842,515	7,624,585	2,199,660
Pennsylvania.						
Philadelphia, ...	47	1,313,900	769	3,162,340	2,627,665	620,620

PETROLEUM.

The law of 1874, requiring every corporation, association, company, person or persons engaged in the transportation, by pipe lines, or storage of petroleum oil, crude or refined, to report quarterly to the Bureau of Industrial Statistics, was repealed by act of 1878, which requires that monthly statements of transportation and storage be posted in the principal office of the parties engaged in the business. Since then the Bureau has been debarred from direct official information from the several pipe lines, by the aforesaid law, and thus are compelled to collect from the most available source within our reach.

Through the courtesy of S. H. Stowell, Esquire, we publish the following tables of petroleum statistics, from "Stowell's Petroleum Report."

The exports of petroleum are published from the reports furnished by Joseph Nimmo, junior, Chief of Bureau of Statistics, Washington, District of Columbia.

GENERAL STATEMENT FOR THE YEAR 1880.

	Barrels.
Total production,	26,032,421
Daily average,	71,124
Total stock in the producing regions,	18,928,430
In the custody of the pipe lines,	16,594,135
In private iron tanks,	566,000
At the wells,	1,768,295
Producing wells, average number for the year,	13,260
Average daily production per well,	5 3-10
Number of new wells completed during the year,	4,217
Average daily production of the new wells,	22 6-10

Number of dry holes, 168.

Shipments of crude and refined, reduced to crude equivalent, during the year:

	Barrels.		Barrels.
To New York,	7,072,234	To California,	7,636
Pittsburgh,	960,336	Other local points,	1,477,181
Cleveland,	2,535,214	Destroyed by fire,	582,490
Philadelphia,	1,743,536		
Boston,	478,363	Total shipments,	15,674,492
Baltimore,	611,505		
Ohio river refiners,	205,997		

The following is a statement made by the United Pipe Lines, July 10, 1880, showing gross stocks, sediment, and surplus, net stocks, outstanding acceptances and credit balances, at the close of each month; also receipts from all sources and total deliveries for each month, beginning with April, 1877:

STATEMENT.

	Gross stocks.	Sediment and surplus.	Net stocks.	Outstanding acceptances.	Credit balances.	Receipts from all sources.	Total deliveries.
1877—April,	1,895,153 71	77,386 70	1,817,767 01	449,640 14	1,368,126 87	200,570 81	125,797 90
May,	1,762,602 64	75,364 87	1,687,237 77	684,663 71	1,003,574 06	494,200 58	619,612 25
June,	1,509,367 68	81,255 42	1,428,112 26	651,786 57	876,325 69	538,906 95	737,609 77
July,	1,482,433 51	81,741 50	1,400,692 01	667,766 56	734,525 65	815,145 46	699,376 18
August,	1,429,052 53	81,344 63	1,407,907 90	643,281 46	764,626 44	674,403 04	666,144 23
September,	1,389,052 27	67,163 68	1,321,888 59	552,646 26	769,242 33	624,225 87	700,745 57
October,	1,434,728 78	46,771 99	1,387,956 79	673,850 05	714,106 74	687,094 59	570,092 71
November,	1,691,399 52	39,418 00	1,651,981 52	657,591 36	994,390 16	913,644 16	619,242 70
December,	2,830,415 36	68,729 63	2,761,685 73	754,338 25	2,007,347 48	1,456,150 37	506,312 99
1878—January,	3,324,641 15	72,456 43	3,252,184 72	864,711 41	2,187,476 31	972,681 18	715,149 78
February,	3,439,526 98	82,452 66	3,357,074 32	1,404,292 13	1,902,782 19	1,030,688 44	760,478 14
March,	3,994,600 65	92,963 06	3,847,637 59	1,457,439 50	2,389,598 09	1,196,251 26	701,651 27
April,	4,335,274 84	131,934 76	4,201,340 08	1,615,791 19	2,585,548 89	1,137,359 40	778,900 73
May,	4,609,681 45	140,117 76	4,469,563 69	2,065,233 31	2,394,330 38	1,104,352 40	843,081 34
June,	4,718,699 25	181,280 03	4,537,899 22	1,940,420 81	2,587,478 41	1,092,604 02	1,004,474 55
July,	4,885,861 72	229,080 78	4,656,770 94	2,078,464 56	2,578,306 38	1,256,648 45	1,198,064 33
August,	4,571,658 59	247,085 19	4,324,573 40	2,004,590 76	2,389,982 64	1,485,468 67	1,495,009 64
September,	4,410,061 84	225,088 86	4,184,972 98	1,705,893 95	2,479,079 03	1,182,118 57	1,348,225 31
October,	4,077,627 43	234,450 89	3,838,576 54	1,517,464 27	2,321,092 27	1,271,174 73	1,564,984 43
November,	4,083,974 42	246,655 30	3,867,317 12	1,784,443 35	2,082,873 77	1,159,630 71	1,129,047 02
December,	4,048,200 92	261,470 80	3,896,730 62	1,741,311 07	2,155,419 55	972,338 84	924,030 93
1879—January,	4,759,031 41	182,707 80	4,576,323 61	2,155,763 83	2,420,259 78	1,230,257 19	846,271 74
February,	5,157,646 15	171,689 80	4,985,956 35	2,346,238 22	2,639,718 13	1,054,377 95	633,828 71
March,	5,503,765 71	190,787 91	5,312,970 80	2,434,861 83	2,878,108 87	1,263,512 47	1,029,029 70
April,	5,856,675 24	241,957 06	5,673,718 18	2,644,301 36	3,029,416 82	1,339,349 76	1,015,482 04
May,	6,180,853 53	315,992 98	6,864,850 55	2,524,446 36	3,342,364 19	1,488,514 31	1,228,043 27
June,	6,426,802 45	334,457 29	6,092,345 16	2,959,921 12	3,132,424 04	1,467,259 90	1,264,757 54
July,	6,419,699 08	323,295 32	6,096,403 76	3,323,575 29	2,772,828 47	1,442,651 01	1,495,018 05
August,	6,380,666 63	302,345 65	6,078,261 48	3,551,224 08	2,497,037 45	1,714,620 11	1,728,940 80
September,	6,589,859 83	325,363 85	6,264,495 98	3,783,480 28	2,481,015 60	1,697,863 41	1,455,814 45
October,	6,701,209 87	299,393 67	6,401,816 20	3,788,455 65	2,613,360 55	1,646,725 06	1,509,992 20
November,	6,951,133 67	303,641 17	6,647,492 50	3,972,300 18	2,675,192 32	1,608,691 29	1,328,621 19
December,	7,264,409 76	294,571 37	7,067,838 39	4,235,459 40	2,832,378 99	1,771,781 24	1,341,822 12
1880—January,	7,735,257 35	291,517 60	7,443,739 78	4,416,788 55	3,026,951 23	1,832,163 04	1,455,194 98
February,	8,187,612 49	322,668 93	7,864,443 56	4,602,286 49	3,262,157 07	1,607,683 89	1,108,111 92
March,	8,621,097 49	341,130 35	8,269,967 14	4,814,894 33	3,455,072 81	1,815,113 31	1,396,037 85
April,	9,662,854 59	388,458 16	9,274,396 43	5,806,736 60	3,467,659 83	1,733,297 37	723,794 73
May,	10,308,078 79	454,193 73	9,853,885 06	6,361,320 05	3,492,565 01	1,552,240 91	975,061 26
June,	11,266,771 77	477,431 09	10,789,340 68	7,397,131 89	3,392,208 19	1,781,937 29	848,359 08
July,	12,089,010 00	475,446 56	11,613,563 44	8,125,241 25	3,488,322 19	1,899,161 44	1,095,228 25
August,	12,749,623 28	462,887 28	12,286,636 00	8,634,394 80	3,651,241 20	1,904,452 70	1,177,448 42
September,	13,618,726 03	382,398 70	13,236,327 32	9,267,193 94	3,949,133 38	2,017,165 26	1,111,184 70
October,	14,020,817 39	391,331 55	13,629,545 84	9,448,615 77	4,180,930 07	1,999,487 98	1,598,285 06
November,	14,656,894 55	341,262 67	14,315,628 88	10,084,824 08	4,231,804 80	1,859,991 59	1,664,146 39
December,	15,369,758 67	361,184 83	15,008,573 84	10,913,283 49	4,095,290 35	1,957,283 54	1,207,928 35

PRODUCING WELLS.—*Number of producing wells at the close of each month in the following years:*

A. D.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Averages.
1870, . .	1,882	2,000	2,152	2,234	2,336	2 455	2,579	2,696	2,802	2,899	2,930	2,906	2,489
1871, . .	2,897	3,036	2,921	2,994	3,087	3,177	3,288	3,369	3,466	3,606	3,692	3,775	3,292
1872, . .	3,892	3,936	3,943	3,967	4,085	4,141	4,245	4,423	4,475	4,475	4,529	4,553	4,250
1873, . .	4,485	4,490	4,411	4,265	4,317	4,400	4,420	4,163	3,940	3,651	3,413	3,358	4,193
1874, . .	3,311	3,235	3,308	3,301	3,266	3,298	3,293	3,287	3,254	3,270	3,220	3,270	3,293
1875, . .	3,132	3,112	3,060	3,052	3,080	3,084	3,067	3,083	3,112	3,125	3,174	3,088	3,098
1876, . .	3,314	3,638	3,670	3,772	3,930	4,527	4,771	6,047	5,285	5,552	5,809	6,000	4,685
1877, . .	6,283	6,441	6,666	6,846	7,037	7,352	7,567	7,684	7,872	8,061	8,323	8,458	7,383
1878, . .	8,616	8,725	8,848	9,071	9,400	9,605	9,776	9,884	10,012	10,188	10,276	10,337	9,561
1879, . .	10,482	10,582	10,692	10,782	11,045	11,223	11,461	11,585	11,760	11,860	11,940	11,960	11,283
1880, . .	12,000	12,072	12,222	12,572	12,972	13,172	13,275	13,500	13,825	14,100	14,400	14,700	13,234

NEW WELLS COMPLETED.—*Number of drilling wells completed in the following years:*

A. D.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
1870, . .	129	133	109	138	162	177	158	152	130	151	106	68	1,613
1871, . .	86	57	64	87	99	154	147	112	128	182	151	191	1,461
1872, . .	87	120	89	121	135	84	128	118	82	. . . . .	61	105	1,183
1873, . .	93	94	100	105	102	130	114	120	106	101	100	98	1,263
1874, . .	102	104	110	113	109	101	121	107	104	120	106	120	1,317
1875, . .	190	187	195	186	172	190	200	210	201	229	217	230	2,398
1876, . .	240	231	242	200	202	261	248	270	209	273	272	272	2,920
1877, . .	281	241	291	269	320	403	317	235	322	467	391	382	3,939
1878, . .	274	226	211	409	470	269	203	186	174	229	248	165	3,064
1879, . .	136	132	238	270	402	330	327	283	200	232	227	261	3,038
1880, . .	320	230	367	500	426	310	333	368	356	364	336	302	4,217

PRODUCTION.—*Average daily production each month in the following years:*

A. D.	Jauuary.	February.	March.	April.	May.	June.	July.	August.	September.	Oetober.	November.	Decemher.	Averages.
1870, . .	11,287	11,714	11,299	12,294	13,211	13,731	13,735	16,776	18,462	18,171	16,953	15,178	14,401
1871, . .	13,497	13,306	12,914	12,865	13,187	13,678	14,725	15,922	15,598	15,653	15,487	15,418	14,254
1872, . .	18,825	15,965	14,890	15,403	17,326	16,874	16,702	17,739	16,681	4,272	21,287	20,825	16,399
1873, . .	20,407	21,725	21,461	21,384	25,044	26,449	27,983	30,198	31,809	30,403	33,049	31,980	27,074
1874, . .	37,653	29,839	28,498	25,958	28,895	30,725	33,337	30,041	28,021	29,669	23,702	27,682	29,919
1875, . .	27,489	25,708	25,469	22,502	22,468	23,207	25,431	23,186	23,298	23,583	23,340	23,254	24,078
1876, . .	22,975	23,065	23,167	23,383	23,721	24,129	24,633	25,533	26,029	26,102	23,2 6	25,390	24,527
1877, . .	27,190	27,979	29,087	32,427	33,874	37,693	38,355	41,089	40,897	40,916	39,114	40,518	35,972
1878, . .	38,816	39,102	38,980	39,853	40,802	40,575	41,415	43,288	43,857	44,187	44,965	42,538	41,532
1879, . .	44,191	43,515	48,365	51,015	53,062	55,855	56,057	61,042	61,890	59,238	57,046	57,076	54,087
1880, . .	61,423	64,552	65,032	67,190	71,901	71,948	72,530	75,517	78,210	76,956	75,814	72,214	71,124

SHIPMENTS.—*Shipment of crude, and refined reduced to crude equivalent, out of the producing region in the following years:*

A. D.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Totals.
1870, . .	360,933	312,910	354,4 0	390,003	407,908	418,5 6	410,707	516,679	542,217	557,624	519,7?0	444,254	5,215,931
1871, . .	457,691	347,718	383,890	389,147	587,375	501,754	541,137	528,134	551,075	505,071	480 917	410,822	5,661,791
1872, . .	476,966	407,6 6	276.220	423,512	510,417	529,228	591,238	621,954	541,607	607,468	477,940	430,786	5,809,947
1873, . .	573,124	527,440	668,374	7?8,191	764,176	6 6,414	814,449	864,768	952,955	1,010,?52	959,598	955,443	9,499,775
1874, . .	843,663	501,2.0	518,246	803,409	899,027	815,413	940,281	793,865	1,014,570	543,341	546,147	602,343	8,821,500
1875, . .	435,095	327,776	693,918	7?9,581	681,679	745 986	904,537	882,089	1,109,3?2	871,917	671,065	876,902	8,942,938
1876, . .	677,289	519,193	623,762	603,037	646,150	921,862	1,223,539	1,203,402	1,154,549	524,190	871,496	1,190,983	10,191,452
1877, . .	748,461	484,904	913,9.9	903,5.6	1,234,324	1,391,124	1,096,951	1,425,943	1,563,797	1,?63,971	1,205,634	6.0,019	12,8 2,?73
1878, . .	775,791	774,2 4	741,512	846,636	960,894	1,135,119	1,330,454	1,655 651	1,431,225	1,747,390	1,281,410	992,688	13,676,000
1879, . .	663,998	702,729	97?,879	1,136,183	1,331,469	1,369,314	1,625,035	1,808,239	1 6 7,120	1,662,269	1,453,645	1,5?2, 85	15,886,470
1880, . .	1,650,409	1,335,151	1,613,371	8.2,268	1,095,259	975,083	1,231,611	1,391,129	1,252,635	1,?65,933	1,226,?30	1,?35,613	13,?74,492

STOCK.—*Total stock of crude in the oil producing fields, at the close of each month in the following years:*

A. D.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Averages.
1870, . .	340,154	342,390	351,474	328,6[illegible]9	329,908	351,168	321,840	356 908	419.477	473,896	576,014	554,626	395,539
1871, . .	537,751	587.021	642,000	771,000	605,000	554,000	511,220	530,146	541,300	495,102	502,900	532,000	575,550
1872, . .	532,971	5[illegible]9,793	662,497	877,832	959,803	1,010,3[illegible]2	991,229	997,166	951,410	9[illegible]4,423	8[illegible]6,909	1,084,[illegible]23	869,896
1873, . .	1,183,728	1,265,378	1,244,657	1,178,643	1,192,541	1,[illegible]21,493	1,433,620	1,5[illegible]3,890	1,521,185	1,452,777	1,498,875	1,625,157	1,3[illegible]9,161
1874, . .	1,948.9[illegible]9	2,[illegible]83,032	2,648,210	2,623,[illegible]34	2,594,[illegible]86	2,701,625	2,279 479	2,932,[illegible]41	2,758,5[illegible]4	3,134 902	3,449,845	3,7[illegible]5,639	2,755,035
1875, . .	4,104,703	4,496,751	4,592,364	4,537,[illegible]43	4,552 672	4,502,896	4,3[illegible]6 720	4,223,397	3,812,9[illegible]5	3,672,[illegible]01	3,701,235	3,55[illegible],2[illegible]0	4,177,8[illegible]9
1876, . .	3,585,143	3,734,8[illegible]5	3,829,250	3,900,703	3,9[illegible]9,904	3,791,6[illegible]2	3,826,726	3,304.405	2,9[illegible]0,456	3,[illegible]40,108	2,955,0[illegible]2	2,824,739	3,434,417
1877, . .	2,604,128	2,86[illegible],636	3,210,454	3.279,731	3,173,0[illegible]8	2,9[illegible]2.674	3,[illegible]04,728	2,8[illegible]7,544	2,503,6[illegible]7	2,504,0[illegible]2	2,471,790	3,127,837	2,875,434
1878, . .	3,[illegible]55,342	3,875,964	4,342,832	4,692,[illegible]90	4,996,058	5,[illegible]78,1[illegible]9	5,[illegible]31,6[illegible]0	4,717,877	4,599,362	4,221,769	4,2[illegible]9,300	4,615,299	4,501,3[illegible]8
1879, . .	5,321,[illegible]22	5,818,6[illegible]3	6,318,[illegible]99	6,689,111	6,980,[illegible]64	7,[illegible]263,150	7,353,382	7,414,195	7,620,525	7,794,634	8,05[illegible],469	8,470,490	7,090,834
1880, . .	8,724,194	9,204,062	9,606,683	10,780,153	11,916,577	13,099,[illegible]34	14,116,753	15,[illegible]63,651	16,157,[illegible]16	16,877,009	18,025,409	18,928,430	13,541,678

DRILLING WELLS.—*Number of drilling wells at the close of each month in the following years:*

A. D.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Averages.
1870, . .	430	433	480	449	443	383	354	288	264	224	180	147	334
1871, . .	140	173	240	279	356	303	329	339	439	486	477	394	329
1872, . .	363	.369	313	302	386	391	359	3[illegible]2	301	311	354	318	342
1873, . .	361	349	227	177	228	395	340	267	[illegible]97	163	137	60	234
1874, . .	37	55	99	213	225	210	189	128	107	82	57	54	121
1875, . .	40	40	45	64	127	162	118	96	132	170	179	168	112
1876, . .	142	151	230	267	3[illegible]7	340	353	374	511	565	6[illegible]8	493	382
1877, . .	457	463	395	448	512	345	365	417	535	57[illegible]	5[illegible]5	426	463
1878, . .	334	326	379	409	376	266	188	185	210	252	297	218	292
1879, . .	265	323	406	468	460	384	329	258	270	313	372	440	357
1880, . .	540	535	577	580	450	440	452	515	491	469	475	408	495

EXPORTS OF PETROLEUM.

Quantities and values of Petroleum and its products, exported from the principal and other ports of the United States, during the years ending June 30, from 1875 to 1880, inclusive:

PETROLEUM AND PRODUCTS OF—	New York.		Philadelphia.		Baltimore.		Boston.		All other ports.		Total.	
	Gallons.	*Dollars.*	*Gallons.*	*Dollars.*	*Gallons.*	*Dollars.*	*Gallons.*	*Dollars.*	*Gallons.*	*Dollars.*	*Gallons.*	*Dollars.*
Mineral, crude, .	11,055,615	1,081,814	3,662,247	324,116	. . . . .	. . . . .	. . . . .	. . . . .	252	88	14,718,114	1,406,018
Mineral, refined:												
Napthas, . .	9,405,412	948,698	1,830,696	147,018	400,329	33,717	81,180	8,118	41,323	3,839	11,758,940	1,141,440
Illuminating,	118,825,486	17,507,286	52,411,429	6,724,172	17,695,329	2,281,732	2,227,142	397,545	479,556	119,626	191,551,933	27,031,361
Lubricating, .	388,515	104,611	200	50	376,677	82,230	400,966	124,119	7,085	2,586	1,173,473	313,646
Residuum, . .	2,391,186	166,790	324,752	17,353	54,189	2,580	. .	. . . . .	2,730	380	2,752,848	187,103
Total 1875, .	142,066,244	19,809,199	58,209,324	7,212,709	18,433,506	2,400,309	2,709,288	529,782	530,946	126,569	221,955,308	30,078,568
Mineral, crude, .	10,675,183	1,218,916	8,663,564	873,592	1,173,080	127,353	. . . . .	. . . . .	3,570	407	20,520,397	2,220,268
Mineral, refined:												
Napthas, . . .	11,149,727	1,113,994	3,250,942	291,492	376,651	33,671	489	90	3,036	564	14,780,236	1,440,811
Illuminating,	111,505,878	16,239,022	60,770,244	7,958,189	28,723,948	3,799,110	2,110,477	380,159	1,619,126	379,078	204,814,673	28,755,638
Lubricating, .	462,432	151,068	20,998	5,359	93,669	20,120	366,373	119,489	19,974	7,837	963,442	303,863
Residuum, . .	2,286,564	171,905	278,105	19,736	8,358	738	. . . . .	. . . . .	8,316	827	2,581,464	193,206
Total 1876, .	136,079,784	18,894,905	72,983,914	9,151,378	30,335,097	3,981,072	2,477,335	499,718	1,734,022	388,713	243,660,152	32,915,736
Mineral, crude, .	21,127,100	2,988,996	4,262,093	558,101	1,111,617	171,200	. . . . .	. . . . .	313,392	38,432	28,819,202	3,756,729
Mineral, refined:												
Napthas, . .	10,915,337	1,363,433	3,499,370	378,412	633,105	64,224	87,093	9,145	5,348	1,468	15,140,183	1,816,682
Illuminating,	165,327,149	35,017,416	59,823,652	10,75 ,806	35,876,575	7,472,443	3,671,122	861,418	6,743,346	1,293,049	262,441,844	55,401,132
Lubricating, .	907,456	273,481	22,269	6,143	165,206	41,421	440,644	151,823	65,490	21,672	1,641,065	497,540
Residuum, . .	2,592,996	259,567	465,368	43,142	75,654	6,122	. .	. . . . .	64,572	8,521	3,196,620	317,355
Total 1877, .	200,870,038	39,902,893	59,073,682	11,743,604	37,862,187	7,755,410	4,198,859	1,021,386	7,191,148	1,366,145	309,198,914	61,789,438
Mineral, crude, .	19,347,620	1,911,694	4,809,278	471,871	1,803,138	176,816	. . . . .	. . . . .	976,691	133,637	23,936,727	2,694,018
Mineral, refined:												
Napthas,	13,986,554	1,224,600	1,994,067	156,793	429,873	29,175	737	155	5,390	1,686	16,416,621	1,411,812
Illuminating,	198,134,569	29,001,711	40,795,553	5,605,117	41,740,233	5,539,865	3,841,942	654,733	4,702,244	712,245	289,214,541	41,513,676
Lubricating, .	1,475,219	393,556	28,697	8,037	196,124	51,229	548,440	162,337	56,144	19,222	2,04,624	639,381
Residuum, .	3,526,886	284,706	178,878	13,593	. . . . .	. . . . .	. . . . .	. . . . .	263,046	17,783	3,963,790	316,087
Total 1878, .	236,470,823	32,820,667	47,806,473	6,255,419	44,169,368	5,797,085	4,391,119	817,230	6,003,515	884,573	338,841,303	46,574,974

EXPORTS OF PETROLEUM—*Continued.*

PETROLEUM, AND PRODUCTS OF—	New York.		Philadelphia.		Baltimore.		Boston.		All other ports.		Total.	
	Gallons.	*Dollars.*	*Gallons.*	*Dollars.*	*Gallons.*	*Dollars.*	*Gallons.*	*Dollars.*	*Gallons.*	*Dollars.*	*Gallons.*	*Dollars.*
Mineral, crude, .	17,716,883	1,517,701	4,687,786	377,197	1,166,825	98,292	. . . . .	. . . . .	2,302,994	187,223	25,874,488	2,180,413
Mineral, refined:												
Napthas, . .	11,477,029	987,145	2,729,037	207,928	600,782	42,500	52,750	4,623	194,763	10,584	15,054,361	1,258,780
Illuminating,	206,529,009	23,088,504	76,307,729	7,795,749	32,662,045	3,231,700	5,090,871	649,553	11,005,788	1,243,356	331,596,442	35,999,862
Lubricating, .	1,709,556	452,257	7,182	3,367	269,759	56,249	478,998	134,903	22,186	8,692	2,487,681	655,468
Residuum, .	2,684,052	173,563	144,564	7,952	216,342	12,693	. . . .	. . . .	262,080	16,518	3,307,038	210,726
Total, 1879, .	240,107,529	26,219,170	83,876,298	8,392,193	34,915,753	3,441,434	5,622,619	789,079	13,787,811	1,472,373	378,310,010	40,305,249
Mineral, crude, .	24,034,260	1,652,200	2,730,147	160,549	. . . . .	. . . . .	500	65	1,533,090	114,393	28,297,997	1,927,207
Mineral, refined:												
Napthas, . .	15,257,520	996,398	2,366,622	148,464	982,702	36,200	385	93	103,815	11,074	18,411,044	1,192,229
Illuminating,	266,841,227	23,489,496	77,083,630	6,234,608	17,921,548	1,399 975	4,011,433	507,511	867,985	151,985	367,325,823	31,783,575
Lubricating, .	4,151,597	822,388	34,943	6,980	307,249	68,713	600,837	137,378	8,218	3,665	5,162,835	1,039,124
Residuum, . .	3,885,588	217,677	395,094	28,161	416,430	24,000	. . . . .	. . . .	69,888	6,652	4,767,000	276,490
Total, 1880, .	314,170,192	27,178,159	82,610,436	6,578,762	19,387,920	1,528,888	5,213,155	645,047	2,582,996	287,769	423,964,699	36,218,625

Petroleum and Petroleum Products, exported from the principal and other ports of the United States, during the month of December, 1880, and during the twelve (12) months ended the same, as compared with similar exports during the corresponding periods of the preceding year.

CUSTOMS DISTRICTS.	Crude.		Naphthas.		Illuminating.		Lubricating.		Residuum.		Total.	
	Gallons.	*Dollars.*	*Gallons.*	*Dollars.*	*Gallons.*	*Dollars.*	*Gallons.*	*Dollars.*	*Gallons.*	*Dollars.*	*Gallons.*	*Dollars.*
Boston,	. .	. .	250	100	551,038	74,489	30,347	8,836	1,386	317	583,021	83,742
New York,	3,489,877	273,307	1,672,144	178,925	18,916,933	2,084,895	287,049	66,164	177,660	9,680	24,543,623	2,612,971
Philadelphia,	652,479	34,673	. . . . .	. . . . .	2,552,627	285,655	18,179	3,125	. . . .	. . . . .	3,223,285	323,453
Baltimore,	. . .	. . .	. . . . .	. . . . .	22,400	2,914	21,200	3,860	. . . . .	. . . . .	43,600	6,774
San Francisco,	350	60	1,330	440	26,510	5,947	100	105	. . . . .	. . . . .	28,290	6,552
Richmond,	. . . . .	. . . .	. . . .	. . .	22,000	2,915	. . . .	. . . .	. . .	. . . .	22,000	2,915
All other districts,	. . . . .	. . . . .	467	79	27,666	5,012	30	30	2,310	140	30,473	5,231
Total for December, 1880,	4,142,706	308,040	1,674,194	179,544	22,119,174	2,461,827	356,865	82,120	181,356	10,407	28,474,292	3,044,638
Total for December, 1879,	3,223,457	248,822	3,249,672	203,715	37,455,321	3,352,574	554,242	104,307	591,258	33,029	45,067,920	3,939,447
Total for twelve months ended December 31, 1880,	36,748,116	2,772,400	15,115,131	1,344,529	286,130,557	29,047,908	5,618,009	1,144,825	3,177,636	198,983	346,789,449	34,505,645
Total for twelve months ended December 31, 1879,	28,601,650	2,069,458	19,524,582	1,357,990	308,597,467	32,811,735	3,108,561	713,208	4,827,522	273,050	424,719,782	37,235,467

PETROLEUM PRODUCED AND EXPORTED.

Quantity of Crude Petroleum produced, and the quantity and value of Petroleum products exported from the United States during each of the fiscal years from 1864 to 1880, inclusive.

Year Ended June 30.	Production.a		Exports.											
					Mineral, refined or manufactured.						Residuum, (tar, pitch, and all other from which the light bodies have been distilled.)		Total.	
	Barrels (of 42 gallons) produced.	Gallons produced.	Mineral, crude, (including all natural oils without regard to gravity.)		Naphthas, benzine, gasoline, &c.		Illuminating.		Lubricating, (heavy paraffine, &c.)					
			Gallons.	*Dollars.*	*Gallons.*	*Dollars.*	*Gallons.*	*Dollars.*	*Gallons.*	*Dollars.*	*Gallons.*	*Dollars.*	*Gallons.*	*Dollars.*
1864, ...	2 478,709	104,105,778	9,980,654	3 864,187	438,197	154,091	12.791,518	6 764.411	. . . . .	. . . . .	. . . . .	. . . . .	23,210,369	10,782,689
1865, ...	2 424,905	101,846,010	12,293,897	6,868,513	480,947	173,943	12.722,005	9,52 ,957	. . . . .	. . . . .	. . . . .	. . . . .	25,496,849	16.563,413
1866, ...	3,165,700	132 959,400	16,057,943	6,015,921	673,477	188,825	34,255.921	18.626.141	. . . . .	. . . . .	. . . . .	. . . . .	50.987,341	24,830,887
1867, ...	3,591.900	150,859.800	7,344.248	1,864,001	224, 76	31.17	62.686 657	22 509 466	. . . . .	. . . . .	. . . . .	. . . . .	70,255.481	24.407.642
1868, ...	3,613,709	151,775,778	10,029,659	1.564,933	1,5 7.268	267.873	67.909.961	19,977,870	. . . . .	. . . . .	. . . . .	. . . . .	79,456,888	21,810,676
1869, ...	4,046,558	169.955,436	13,425,566	2,994,4 4	2,673,094	445,770	84,4 3.492	27.636,137	c134,532	51,122	. . . . .	. . . . .	100,636,684	31,127,433
1870, ...	4,4 1,016	185,262,672	10,4 3,314	2 237,292	5 422 604	561.864	97.9 2 505	29,864. 93	c6 871	2 611	. . . . .	. . . . .	113 735 294	32 668,960
1871, ...	5,558,775	233,468.550	9,859,038	1,971,847	7,209,592	746 797	132.608 955	34,138,736	c9,632	22.660	c155,474	14,770	149,8 2,691	36,894,810
1872, ...	5,842,497	245,384.874	13,559 768	2.3 7,111	8.092.635	932.160	122.539,575	30.566.108	541,419	.211,287	438,186	41,724	145,171 583	34.058 390
1873, ...	7,242 343	3 4,178,406	18,439,407	3,010,650	9 743,593	1,487.439	158.102,414	37,195.745	748,699	277,966	781,074	79 566	187,815,187	42.050,756
1874, ...	11,188 741	469,927,122	17,776,419	2.099 696	9.737 457	1,038 622	217,22 ,504	37,560,995	1,244 305	494.243	1.827,798	142,209	247,806,483	41,245.8 5
18 5, ...	10,083,828	423,520.776	14,7 8.114	1,406 018	11,758,940	1,141 440	191,551,933	27.03 .361	1,173,473	313,646	2,752,848	187,103	221,955,3 8	30,078,568
1876, ...	8,823 142	370,571,964	20,52 ,397	2,22 ,263	14,78 ,236	1,442,811	204,814.673	28 755,638	963,442	303 863	2.581.4 4	193 2 6	243,660.152	32 915,786
1877, ...	10,822,871	454,560,582	26,819,2 2	3,756,729	15,140.183	1,816.682	262,441,844	55,401,132	1,691,065	497,540	3,196 62	3 7.355	309 198 914	61 789,438
1878, ...	14,738,262	619,007,004	26,936.727	2 694,018	16,4 6,621	1.411,812	289,214,541	4 ,513.676	2,3 4 624	639,381	3,968 790	316 087	338 841.303	46,574 974
1879, ...	16,917,606	710,539,452	25,874,488	2.189,413	15.054 361	1.258 780	331,586,442	35,999.862	2.487.681	655.468	3 3 7,038	210,726	378.310 010	40,305,2 9
1880, ...	22,382,509	940,065,378	28,297,997	1,927,207	18,411,044	1,192,229	367,32 ,823	31,783,575	5,162,835	1,039,124	4,767,000	276,490	423,961,699	36,218,625

a As a given number of gallons of refined petroleum represents the product of a larger number of gallons of crude petroleum, it is necessary to reduce the exports of petroleum to their equivalent in crude oil, in order to arrive at a knowledge of the percentage of the total product of mineral oil exported. It has been ascertained, as the result of a careful computation, that the quantity of petroleum and its distilled products exported during the year ended June 30, 1878, was equivalent to 407,482,175 gallons of crude oil; or, in other words, that the exports of petroleum constituted about sixty-six per cent. of the production. A larger percentage of the mineral oil product of the country is exported than of any other product, except cotton.

b Barrels reduced to gallons, at the rate of forty-two gallons to the barrel.

c Estimated.

CHARACTERISTICS OF THE RAILROADS OF PENNSYLVANIA.

Name of Company.	Length of main line of road, in miles.	Length in miles of branch roads owned.	Length in miles of leased roads.	Total number of miles operated.	Number of wooden bridges.	Number of stone bridges.	Number of iron bridges.	Number of depots or stations.	Number of wood and water stations.	Number of tunnels.	Number of engines.	No. of first-class passenger cars.	No. of second-class passenger cars.	No. of baggage, mail, and express cars.	No. of freight cars of all classes.
Allegheny Valley,	259.50	70.00		329.50	63	62	10	112	15	5	75	28	9	8	1,896
Allentown,	35 80	4.50		40.30	1			1	1						
Bachman Valley,	9.00			9.00	8			6	1						
Bald Eagle Valley,	53 70	4.20		57.90	5			18	5						
Barclay Coal Company,	16.30	6.40	22.70												
Bedford and Bridgeport,	49 20	4.80		54.00	19		1	26	5						
Bellefonte and Snow Shoe,	21.40	8.20	4.10	33.70	12			11	2		6	2			53
Bell's Gap,	23.10	2.00		25.10				12	3		3	6			69
Buffalo, New York and Philadelphia,	120.55	25.00		145.55	14	3	4	31	12		31	13	1	5	1,616
Berlin Branch,	7.00			7.00	2										
Berlin,	8.12			8.12	9			8	2						
Baltimore and Cumberland Valley Ex.,	26.00			26.00											
Catasauqua and Foglesville,	25.00	8 00		33.00	2	3	5	18	7		6	3		1	577
Catawissa,	94.00	15.50		109.50	15		2		23	3					
Chartiers,	22 80	2.70		25.50	21		3	27	2	2					
Chester Creek,	7.25			7.25			2	8							
Chester and Delaware River,	4.10	1.90		6.00	3		1	2	2						
Chester Valley,	21.50	1.50		23.00	28	26		16							
Chestnut Hill,	4.15			4.15		3	1	8							
Cleveland and Pittsburgh,	197.75	25.65	64.00	287.40	59	36	18	56	25	1	97	38	5	22	3,266
Colebrookdale,	12 80	2.16		14.96	7		1	9	1						
Columbia and Port Deposit,	40.00	3.60		43.60	13	13	2	22	3						
Connecting,	6.75			40.80		6	8	7	1						
Corning, Cowanesque and Antrim,	64.00	11.96		75.96				13	8		23	9	3	5	1,037
Cornwall,	12.75			12.75	3	7	6	15	2		5				166
Cumberland Valley,	83.20	42.80	12.40	138.40	2	4	5	48	8		21	22	3	8	269
Delaware and Hudson Canal Company,	77.36		18.69	96.05				16	12		37	6		6	4,201
Delaware, Lackawanna and Western,	207.50	121.00		328.50											

CHARACTERISTICS OF THE RAILROADS OF PENNSYLVANIA—*Continued.*

NAME OF COMPANY.	Length of main line of road, in miles.	Length in miles of branch roads owned.	Length in miles of leased roads.	Total number of miles operated.	Number of wooden bridges.	Number of stone bridges.	Number of iron bridges.	Number of depots or stations.	Number of wood and water stations.	Number of tunnels.	Number of engines.	No. of first-class passenger cars.	No. of second-class passenger cars.	No. of baggage, mail, and express cars.	No. of freight cars of all classes.
Delaware River and Lancaster,					11	5	10	47	37	3	169	44		24	20,555
Dillsburg and Meehaniesburg,	7.70			7.70	6			2							
Dunkirk, Allegheny Valley & Pittsb'gh,	90.60	11.90		102.05	18	1	9	21	12		12	6	2	2	91
Delaware Western,	20.00	4.55		24.55	10		5	12	2		4	3		2	30
East Brandywine and Waynesburg,	29.12			29.12	15			21	2						
East Broad Top,	30.00	5.62		35.62	17			9	6	2	8	2		2	221
East Mahanoy,	10.70	4.60		15.30	3		6	4	2	1					
East Pennsylvania,	54.30	16.66		70.96	23	7	10	12							
Ebensburg and Cresson,	11.00			11.00	1	2		3	1						
Edgewood,	1.00			1.00					1		1				
Elmira and Williamsport,	76.70			76.70	59			20	8						
Evergreen,	2.61			2.61	13	1		10	2						
Emlenton, Shippenville and Clarion,	29.70	2.40		32.10	1			20	6		4		5	2	72
Erie and Pittsburgh,	84.49	26.50		110.99	10	4		20	8		29	5		4	1,331
Fayette County,	12.66			12.66	22			7	1						
Foxburg, St. Petersburg and Clarion,	13.20			13.20	1			8	1		3	3	1		19
Frankford and Holmesburg,	4.16			4.16	5			7	1						
Geneva, Hornellsville and Pine Creek,	122.00			122.00											
Greenlick and Narrow Guage,	3.50			3.50				3	1		1				17
Hanover Junction, Hanover & Gettysb'g,	30.00	2.85		32.85	19		1	16	5		9	9	3	2	59
Harrisb'g, Portsmouth, Mt. Joy & Lane.,	53.67	16.88		97.54											
Harrisburg and Potomac,	27.15	28.15		45.30	33			17	3		2		1	1	5
Huntingdon and Broad Top Mountain,	62.50	16.40		78.90	30		5	33	8		18	4	1	2	61
Hanover and York,	19.00			19.00											
Ironton,	10.00	4.00		14.00	11				2		2				1
Jamestown and Franklin,	51.00	2.30		53.30	9		1	13	9						
Jefferson,	44.85			44.85				10	7						
Junction,	3.12			3.12			4								
Karns City and Butler,	17.00			17.00	4			13	3		3	1	1	2	30

Keystone Coal,	5.50			5.50					2		2					80
Kendall & Eldred,	15			15	1			8	2		6		7	2		128
Lake Shore and Michigan Southern,	1,024.94	476.57	152.73	1,654.24	57	11	53	218	132	2	495	100	34	92		13,215
Lawrence,	17.98	4.06		22.04	4	1	2	12	2							
Lehigh and Lackawanna,	25			25	2			5	2							
Lehigh and Susquehanna,	154.75	23.70		178.40	37	21	18	45	19	2	91	15	11	1		22,619
Lehigh Valley,	304.04		9.60	313.64	23	5	29	114	45	1	255		70			27,514
Ligonier Valley,	10.50			10.50	4			11	3		2	1	1	1		19
Little Saw-Mill Run,	3			3	4				1		3			1		79
Littlestown,	9.50			9.50	5			6	1							
Little Schuylkill Navigation,	31.20		7.50	37.70	33		2	16	7	1						
Lykens Valley,	20			20	3		1	9	10		7		2	1		15
Lewisburg and Tyrone,	59.68			59.68	17			7	4							
McKean and Buffalo,	22.15			22.15	19			10	4		2	1		1		5
Mifflin and Centre County,	12.31			12.31	15			9	2							
Mill Creek and Mine Hill Navigation,	7.27			7.27				6	2							
Mine Hill and Schuylkill Haven,	66.50			66.50	78	2	1									
Monongahela Inclined Plane,								2			2					
Mont Alto,	10.25	7.60		17.85	11			12	2		1		1			
Montrose,	28			28				13	5		2	1	1	1		
Mount Carbon and Port Carbon,	2.50			2.50				2	2							
Mount Oliver Inclined Plane,								2								
Nesquehoning Valley,	16.50	1.12		17.67	12			12	4	1						
New Castle and Beaver Valley,	14.95			14.95	2	6	1	9	2							
New Castle and Franklin,	38			38	7			20	3		4		2			20
New Castle and Mining,	3.75			3.75	2						3					76
Newry,	1			1												
Northern Central,	146.60	76.99	186.50	401.09	84	17	58	63	22	2	152	50	16	42		4,780
North-East Pennsylvania,	9.80			9.80				11								
North Pennsylvania,	135	33.62		168.62	4	1	25	111	12	2	58	63		32		1,148
New York, Pennsylvania and Ohio,	423.26	338.56	133.32	895.14	83	3	18	101	79		193	46	48	41		4,529
Olean, Bradford and Warren,	10.43			10.43	1			8	1		3	2	2	2		79
Oil City and Ridgway,	6			6	8			4	1		1					43
Parker and Karns City,	10.50			10.50	23			11	3		2	3	2	2		45
Peach Bottom,	60			60	18			38	6		6	3	6	2		41
Pennsylvania,	433.29	330.42	1,022.08	2,481.48	64	84	125	671	214	7	627	252	107	126		12,872
Pennsylvania Coal,	47			47	5			6		1	2		11			2,860
Pennsylvania Company,											25	4		1		6,054
Pennsylvania Inland,	104.55	103 80		208.30	3			39	15		51					3,982
People's,	6.60			6.60	1						3		11			6
Perkiomen,	38.50			38.50	14		8	26	5	1						
Philadelphia and Baltimore Central,	46		11	57	28		3	35	5		11	8	1	3		126
Philadelphia and Chester County,	35			35												

CHARACTERISTICS OF THE RAILROADS OF PENNSYLVANIA—*Continued.*

NAME OF COMPANY.	Length of main line of road in miles.	Length in miles of branch roads owned.	Length in miles of leased roads.	Total number of miles operated.	Number of wooden bridges.	Number of stone bridges.	Number of iron bridges.	Number of depots or stations.	Number of wood and water stations.	Number of tunnels.	Number of engines.	Number of first class passenger cars.	Number of second class passenger cars.	Number of baggage, mail, and express cars.	Number of freight cars of all classes.
Philadelphia and Erie,	287.49			287.49	126		31	75	41						
Philadelphia, Germantown and Norristown,	17	12.25		29.25	6	5	14	21	4		24	45		13	192
Philadelphia, Newtown and New York,	20.90			20.90	9	9		22	1						
Philadelphia and Reading,	327	453.30	537.90	1,318.20	799	112	197	259	79	10	506	357	73	76	31,042
Philadelphia and Trenton,	27.80		11.10	38.90	3		5	36	5						
Philadelphia, Wilmington and Baltimore	112.18		100.50	212.68	13	32	39	81	22		78	131		48	1,331
Pickering Valley,	11.30			11.30	2		3	9							
Pittsburgh, Titusville and Buffalo,	163.80			163.80	15	49					33	11	9	7	481
Pittsburgh and Castle Shannon,	6			6				14	2	2	5	4	3	1	380
Pittsburgh, Cincinnati and St. Louis,	200.40		970.80	1,171.20	35	29	22	588	100	9	107	23	18	28	3,484
Pittsburgh and Connellsville,	153.76		22.50	176.26	12	1	27	70	26	4	16	15		7	206
Pittsburgh, Fort Wayne and Chicago,	525.70		49.25	574.95	14	42	70	155	51		278	127	28	59	6,796
Pittsburgh and Lake Erie,	70.35			70.35	3	9	18	47	5						
Pittsburgh, Virginia and Charleston,	53			53	12	2	6	51	5		24	17	5	2	1,133
Pittsburgh Southern,	37.90	1.30		39.20				32	4		4	3	1	3	60
Plymouth,	9.25			9.25	11		2	4	1						
Pomeroy and State Line,	26.70			26.70	30			15	2						
Reading and Columbia,	51.77		15.25	67.02	72	2	5	35	13		10	7		1	48
Salisbury,	11.16			11.16	4			8	2		1			1	
Schuylkill Valley Navigation and Railroad ompany,	18.57			18.57				12	1						
Shamokin Valley and Pottsville,	27.30			27.30	21			8	2						
Sharpsville,	17.66			17.66	3		1	1	2		4				2
Somerset and Cambria,	9.10			9.10	1			9	1		1		1	1	2
South Mountain,	17.78			17.78	1			10	3		3	2			11
Southern Pennsylvania Railway and Mining Company,	21	2		23	3			15	2						

Sharon,	9	4		13	6			5	2									
South-West Pennsylvania,	52.56			52.56	63			20	6									
State Line and Sullivan,	24			24	10			10			2		2		1			
Stony Creek,	11.15			11.15			9	8	1									
Sunbury, Hazleton and Wilkes-Barre,	43.44			43.44	13			5	5									
Tioga,	48	6.60		54.60	22		2	23	9		17		5	3	4	953		
Treskow,	6.50			6.50				2	2									
Tyrone and Clearfield,	44.04	18.03		62.07	42			15	8									
Waynesburg and Washington,	27.93			27.93	3			26	4		3		1	1	1	15		
West Chester,	5.19			5.19			1	4										
West Chester and Philadelphia,	26.30			26.30	10		9	24	4		10		22		5	68		
Western Maryland,	90			90			5	53	9		12		21	5	9			
Western Pennsylvania,	63.50	21.05		84.55	33			67	16	2								
Wheeling, Pittsburgh and Baltimore,	32			32	12	1		10	4	6			4		3			
Wilmington and Northern,	63.60	13.80		77.40	17			42	9		13		4	4		146		
Total,	8,588.79	2,433.51	3,351.92	15,086.29	2,707	625	929	4,381	1339	70	3,702	1,556	519	719	182,104			

THE AMOUNT OF FREIGHT TRANSPORTED ON THE RAILROADS OF PENNSYLVANIA DURING THE YEAR 1880, SPECIFYING THE QUANTITY IN TONS.

NAME OF COMPANY.	Anthracite coal.	Bituminous coal.	Petroleum and other oils.	Pig iron.	Railroad iron.	Other iron or castings.	Iron and other ores.
Allegheny Valley,	5,097	1,193,345	185,520	84,627	9,136	.....	168,554
Bellefonte and Snow Shoe,	88	67,720	35	.....	.....	199	
Bell's Gap,	....	87,316					
Buffalo, New York and Philadelphia,	103,343	444,334	472,887	2,076	1,935	25,102	1,468
Catasauqua and Fogelsville,	58,475	3,298	.....	24,772	....	3,505	232,115
Chartiers,	.....	181,908	43	3	22	288	
Cleveland and Pittsburgh,	.....	948,330	27,907	86,655	30,334	25,156	301,068
Corning, Cowanesque and Antrim,	1,107	590,720	10	.....	32	55	55
Cornwall,	77,681	.....	....	62,619	.....	.....	254,049
Cumberland Valley,	89,068	23,557	1,656	15,254	2,752	11,541	96,660
Delaware and Hudson Canal Company,	2,623,186	.....	82	10,611	3,222	16,294	71,309
Delaware, Lackawanna and Western,	4,070,910	90,012	5,013	92,400	55,560	85,836	147,864
Dunkirk, Allegheny Valley and Pittsburgh,	9,181	11,412	96,886	135	.....	1,209	
Delaware Western,	3,814	66,765	54	779	.....	9,747	14,550
East Broad Top,	15,218	115,068	98	20,413	.....	.....	40,870
Edgewood,	.....	92,000					
Elmira and Williamsport,	.....	897,310	785	3,428	38,024	19,406	8,289
Emlenton, Shippenville and Clarion,	521	2,573	.....	.....	.....	....	3,533
Erie and Pittsburgh,	.....	287,419	1,140	67,428	1,732	9,694	106,505
Foxburg, St. Petersburg and Clarion,	546	573	.....	.....	.....	.....	3,480
Greenlick and Narrow Gauge,	....	.....	.....	.....	.....	.....	11,133
Hanover Junction, Hanover and Gettysburg,	10,714	.....	.....	.....	.....	.....	35,566
Harrisburg and Potomac,	4,184	807	1	1,827	20	....	27,128
Huntingdon and Broad Top Mountain,	1,200	417,330	656	10,821	3,302	299	51,200
Ironton,	7,222	.....	.....	.....	.....	.....	75,170
Keystone Coal,	.....	51,752					
Keudall and Eldred,	10,179	.....	.....	.....	....	544	
Lake Shore and Michigan Southern,	394,347	845,745	328,174	202,103	166,863	267,690	140,054
Lawrence,	58	365,175	187	14,133	1,102	8,977	145,543
Lehigh and Lackawanna,	10,109	10	35	.....	50	63	21,243
Lehigh and Susquehanna,	390,835	400	2,455	41,552	4,890	30,889	169,842
Lehigh Valley,	5,093,098	66,309	238,901	335,095	99,232	.....	707,052
Ligonier Valley,	.....	63	.....	.....	.....	7	109
Little Saw-Mill Run,	.....	301,647	.....	.....	.....	.....	.....

Lykens Valley,	438,482	. . . . .	75	70	225	179	. . . . .
McKean and Buffalo,	500	101,937	250	. . . . .	300	5,000	. . . . .
Mont Alto,	6,852	. . . . .	. . . . .	5,125	. . . . .	. . . . .	14,511
Montrose,	3,535	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
New Castle and Beaver Valley,	58	733,179	927	67,534	3,148	16,337	160,180
New Castle and Franklin,	73,253	. . . . .	408	471	. . . . .	18,719	9,509
Northern Central,	1,543,807	. . . . .	258,977	127,069	46,117	88,187	264,804
North-East Pennsylvania,	4,363	. . . . .	17	. . . . .	. . . . .	22	. . . . .
New York, Pennsylvania and Ohio,	52,925	811,227	233,390	189,945	. . . . .	252,488	486,761
Olean, Bradford and Warren,	. . . . .	6,640	. . . . .	. . . . .	. . . . .	1,331	. . . . .
Oil City and Ridgway,	. . . . .	6,800	. . . . .	. . . . .	. . . . .	200	. . . . .
Peach Bottom,	682	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Pennsylvania,	1,247,519	6,247,204	573,266	712,384	250,874	488,913	791,249
Pennsylvania Coal.	1,265,913	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Pennsylvania and New York Canal,	790,119	435,516	. . . . .	26,205	41,586	. . . . .	622
Perkiomen,	95,388	283	5,071	29,161	16,597	25,335	22,610
Philadelphia and Baltimore Central,	24,566	3,478	224	3,745	. . . . .	. . . . .	2,190
Philadelphia and Erie,	1,046,909	957,940	602,993	38,473	61,288	117,003	45,917
Philadelphia, Newton and New York,	6,183	. . . . .	524	11	. . . . .	954	. . . . .
Philadelphia and Reading,	7,718,301	322,625	240,849	465,782	207,396	424,152	1,020,092
Philadelphia, Wilmington and Baltimore,	59,659	53,341	10,417	21,495	5,839	97,075	13,365
Pittsburgh, Titusville and Buffalo,	11,215	335,120	137,452	. . . . .	. . . . .	66,011	. . . . .
Pittsburgh and Castle Shannon,	. . . . .	101,055	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Pittsburgh, Cincinnati and St. Louis,	. . . . .	1,192,378	15,003	32,247	59,925	76,517	112,051
Pittsburgh and Connellsville,	1,413,241	678,454	8,458	34,691	20,609	78,726	64,732
Pittsburgh, Fort Wayne and Chicago,	48,271	1,130,713	24,527	122,837	95,335	95,129	137,639
Pittsburgh and Lake Erie,	. . .	490,449	660	36,341	9,509	108,373	166,987
Pittsburgh Southern,	15,964	165	. . . . .	. . . . .	. . . . .	551	. . . . .
Reading and Columbia,	222,153	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Salisbury,	. . . . .	151,965	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Shamokin Valley and Pottsville,	. . . . .	1,095,976	988	13,013	313	12,182	478
Sharpsville,	. . . . .	127,407	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
State Line and Sullivan,	57,554	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Stony Creek,	18,551	109	56	517	. . . . .	52	. . . . .
Tioga,	3,107	646,965	273	120	223	381	33
Waynesburg and Washington,	. . . . .	1,636	55	. . . . .	13	247	. . . . .
West Chester and Philadelphia,	. . . .	48,475	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Western Maryland,	21,132	31,018	. . . . .	. . . . .	. . . . .	. . . . .	13,687
Wheeling, Pittsburgh and Baltimore,	2,187	168	. . . . .	. . . . .	. . . . .	918	. . . . .
Wilmington and Northern,	71,514	47,638	. . . . .	37,283	. . . . .	22,876	69,332
Total,	29,264,034	22,912,762	3,447,285	3,041,250	1,237,385	2,514,392	6,232,158

THE AMOUNT OF FREIGHT TRANSPORTED ON THE RAILROADS OF PENNSYLVANIA—*Continued.*

NAME OF COMPANY.	Stone and lime.	Agricultural products.	Merchandise & manufactures.	Live stock.	Lumber.	Other articles.
Allegheny Valley,	. . . . .	31,346	225,316	2,014	214,266	503,621
Bellefonte and Snow Shoe,	750	759	695	. . . . .	7,950	8,277
Bell's Gap,	. . . . .	. . . .	1,219	. . . . .	10,087	938
Buffalo, New York and Philadelphia,	1,806	47,913	75,395	3,565	152,575	46,223
Catasauqua and Foglesville,	94,110	925	11,749	. . .	4,859	146
Chartiers,	6,675	8,996	6,506	4,522	3,393	1,817
Cleveland and Pittsburgh,	78,951	66,550	250,167	17,860	91,764	44,488
Corning, Cowanesque and Antrim,	922	5,357	28,304	43	34,606	5,725
Cornwall,	18,888	. . . . .	. . . . .	. . . . .	. . . . .	21,682
Cumberland Valley,	4,824	57,176	91,344	11,163	38,944	3,187
Delaware and Hudson Canal Company,	421	29,157	31,280	3,041	50,275	8,874
Delaware, Lackawanna and Western,	125,644	282,476	142,056	5,484	129,444	36,660
Dunkirk, Allegheny Valley and Pittsburgh,	2,030	10,677	12,333	775	35,231	15,669
Delaware Western,	2,817	3,660	8,945	17	9,997	389
East Broad Top,	82	189	3,423	. . . .	4,773	1,605
Elmira and Williamsport,	8,643	247,999	116,272	9,271	65,442	678
Emlenton, Shippenville and Clarion,	. . . .	1,040	8,103	1	3,070	903
Erie and Pittsburgh,	92,904	9,351	5,282	4,651	20,547	139,423
Foxburg, St. Petersburg and Clarion,	. . . . .	477	6,793	1	2,468	763
Greenlick and Narrow Guage,	. . . . .	. . . . .	283	. . . . .	. . . .	. . . . .
Hanover Junction, Hanover and Gettysburg,	16,052	6,705	13,448	2,765	3,768	402
Harrisburg and Potomac,	. . . .	2,766	2,703	. . . . .	. . . .	41
Huntingdon and Broad Top Mountain,	27,293	1,352	26,619	675	24,195	. . . . .
Ironton,	28,560	. . . . .	. . . . .	. . . . .	. . . .	2,291
Kendall & Eldred,	. . . .	4,031	30,263	. . . .	16,501	. . . . .
Lake Shore and Michigan Southern,	201,245	2,034,390	949,361	637,770	801,642	1,380,692
Lawrence,	108,440	2,805	15,842	5,785	4,423	5,990
Lehigh and Lackawanna,	20,114	470	603	5	340	243
Lehigh and Susquehanna,	98,124	51,742	46,926	225	90,090	30,246
Lehigh Valley,	107,285	. . . . .	. . . .	29,034	120,140	1,391,918
Ligonier Valley,	144	270	115	389	13,146	945

Little Saw-Mill Run,	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	61
Lykens Valley,	117	552	1,622	. . . . .	1,621	4.350
McKean and Buffalo,	2,800	2,000	4,300	100	16,000	780
Mont Alto,	. . . . .	1,116	4,697	. . . . .	2,219	. . . . .
Montrose,	. . . . .	. . . . .	. . . . .	. . . . .	3,091	4,991
New Castle and Beaver Valley,	122,961	9,596	51,167	9,648	16,621	29,482
New Castle and Franklin,	200	290	7,872	676	11,543	1,235
Northern Central,	105,954	1,286,604	446,344	30,725	370,953	29,381
North-East Pennsylvania,	105	2,250	250	420	4,600	988
New York, Pennsylvania and Ohio,	230,474	476,651	325,088	58,292	128,296	674,109
Olean, Bradford and Warren,	. . . . .	2,809	9,869	. . . . .	6,497	. . . . .
Oil City and Ridgway,	. . . . .	. . . . .	. . . . .	. . . . .	200	. . . . .
Peaeh Bottom,	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	22,726
Pennsylvania,	662,456	1,866,523	894,771	416,137	731,875	481,617
Pennsylvania Coal,	. . . . .	. . . . .	. . . . .	1,608	2,000	. . . . .
Pennsylvania and New York Canal,	5,674	. . . . .	760,025	26,787	50,565	. . . . .
Perkiomen,	8,233	117,308	105,246	24,464	54,295	153,367
Philadelphia and Baltimore Central,	5,450	33,651	45,464	39,999	9,403	3,874
Philadelphia and Erie,	54,887	1,067,851	232,672	18,001	515,155	102,374
Philadelphia, Newton and New York,	721	1,309	98	117	1,287	6,602
Philadelphia and Reading,	10,399,187	625,637	1,095,517	427,763	59,198	2,235,464
Philadelphia, Wilmington and Baltimore,	46,124	121,014	469,483	85,379	85,520	153,983
Pittsburgh, Titusville and Buffalo,	14,089	11,368	24,861	. . . . .	67,949	44,143
Pittsburgh and Castle Shannon,	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	112
Pittsburgh, Cincinnati and St. Louis,	66,847	723,715	403,809	187,608	85,171	117,644
Pittsburgh and Connellsville,	115,626	10,341	50,267	2,645	52,099	3,175
Pittsburgh, Fort Wayne and Chicago,	174,183	626,991	532,478	531,619	231,824	131,190
Pittsburgh and Lake Erie,	104,079	14,187	78,163	145	18,383	17,846
Pittsburgh Southern,	515	2,396	2,172	483	2,008	157
Reading and Columbia,	. . . . .	. . . . .	242,859	. . . . .	. . . . .	. . . . .
Salisbury,	. . . . .	156	914	. . . . .	1,697	. . . . .
Shamokin Valley and Pottsville,	11,776	90,016	88,252	233	28,038	19,191
Sharpsville,	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	100
Stony Creek,	4,316	1,926	4,915	540	2,373	2,194
Tioga,	3,428	4,340	11,064	1,065	26,115	661
Waynesburg and Washington,	137	4,693	1,434	903	306	630
West Chester and Philadelphia,	4,742	7,719	29,604	. . .	5,561	1,244
Western Maryland,	5,004	. . . . .	. . . . .	7,478	11,774	99,766
Wheeling, Pittsburgh and Baltimore,	7,217	3,993	1,155	1,451	754	5,809
Wilmington and Northern,	19,523	11,351	54,098	. . . . .	22,792	. . . . .
Total,	13,223,448	10,038,753	8,091,975	2,613,342	4,079,119	8,003,071

AGRICULTURAL.

THE CROPS OF 1880.*

[From Report of State Board of Agriculture.]

COMPARED WITH PAST TEN YEARS.

The annual summing up at the close of the agricultural year of 1880, will show that as a body the farmers of Pennsylvania have but little just cause for complaint. Notwithstanding the ominous complaints which reached us in May, and which were caused by the then unfavorable nature of the season, the aggregate value of the crops will exceed the average of the past ten years. In some localities, long continued dry weather had the effect of shortening the yield of at least two crops, but subsequent favorable weather so stimulated other crops, that the deficiency is more than made up. The past season has been one which has shown the advantages of the system of agriculture practiced in Pennsylvania in a strong light, and exhibits the advantages which a mixed system always possesses, when compared with one which depends upon a single crop. The Pennsylvania farmer finds his profit in the aggregate value of a number of crops, and the failure of one, or even two of these, is so usually accompanied by a corresponding gain to the others, that his average profits do not vary much.

The average annual value of our leading crops (corn, wheat, hay, rye, oats, potatoes, tobacco, buckwheat, and barley) for the past ten years, has been $110,930,000. The lowest total value has been $99,159,000, and the highest $128,459,000. The returns from our official correspondents and reporters lead us to estimate the total value of these crops for 1880 at $111,250,000, which may be sub-divided as follows:

Hay,	$36,250,000	Rye,	$3,100,000
Corn,	24,400,000	Buckwheat,	1,775,000
Wheat,	21,750,000	Barley,	500,000
Oats,	12,450,000		
Potatoes,	6,270,000		$111,250,000
Tobacco,	4,700,000		

The value of the crops of 1880, when compared with the average of ten years, shows a gain of $320,000. When compared with the lowest annual value for the same period a gain of $2,091,000, and when compared with

* The acreage, yield, and value of crops in Pennsylvania are obtained from the quarterly reports of four hundred official reporters of this Board, who are appointed by members of the Senate and House of Representatives, and are so situated as to give explicit returns from each district of the State. From a combination of these reports the aggregate acreage and yield is taken. The Secretary would acknowledge his indebtedness to the reports of the National Agricultural Department, for information here given.

the greatest annual value, an apparent loss of $37,200,000 is shown. The greatest aggregate value was for the year 1871, and when it is remembered that since then there has been a shrinkage in the prices of all of our crops, the actual deficiency will be much less.

The annual value of the crops of Pennsylvania during the past ten years has been as follows:

1871,	$128,459,000	1876,	$104,925,000
1872,	121,362,000	1877,	99,159,000
1873,	115,965,000	1878,	99,654,000
1874,	117,730,000	1879,	99,750,000
1875,	111,052,000	1880,	111,250,000

If the annual value of the crops of each year was obtained from the same prices per bushel or per ton, the variation would be much less than is shown by the above figures, and would more strongly illustrate the advantages of a system of mixed husbandry which does not risk all upon the success or failure of a single crop.

During the same period the aggregate acreage of these crops has been increased from five million nine hundred and eighty thousand acres in 1871, to six million three hundred and fifty-four thousand seven hundred and fifty acres in 1880. This increase has been greatest in the lumber, coal, and oil regions of the State, where a partial stagnation of these interests has stimulated agriculture as a mode of obtaining a living, when employment in other interests ceased to be remunerative, and it is to these regions that we must look for the increased acreage of the coming decade. The increase may be shown by the following annual acreage:

	Acres.		*Acres.*
1871,	5,980,000	1876,	6,700,000
1872,	5,831,000	1877,	6,934,000
1873,	5,780,000	1878,	7,162,000
1874,	5,798,000	1879,	7,187,000
1875,	5,975,000	1880,	7,200,000

The increase in acreage has, in some measure, assisted to prevent a greater falling off in the annual value, and has partially counterbalanced the shrinkage in values.

When the annual value of the crops of Pennsylvania is compared with those States whose system of agriculture is dependent upon the success or failure of one crop, the variation shown will be much greater.

CORN.

The national corn crop of 1880 is estimated at fourteen hundred and fifty million bushels, and valued at $442,500,000. It is one of the three largest ever produced, being only exceeded by that of 1879, by ninety-four million eight hundred and ninety-nine thousand bushels. Figures fail to give a proper idea of the immensity of the crop, and we can only partially realize it by remembering that if loaded upon two-horse wagons, and each wagon allowed twenty-five feet of space, the procession would extend a distance of over one hundred and ninety thousand miles, and the bags needed for

it would almost make a load for three hundred and fifty thousand such teams.

The acreage, yield, and value of the corn crop of the United States, for the past ten years, have been as follows:

	Acres.	*Yield.*	*Value.*
1871,	34,091,000	991,890,000	$478,275,000
1872,	35,526,836	1,092,719,000	435,149,230
1873,	39,197,148	932,274,000	447,183,000
1874,	41,036,918	1,850,148,500	550,043,080
1875,	44,841,371	1,321,069,000	555,445,930
1876,	49,033,364	1,283,827,000	475,491,210
1877,	50,369,113	1,343,558,000	480,643,400
1878,	51,585,000	1,388,218,750	441,153,405
1879,	51,750,000	1,544,899,000	444,250,000
1880,	52,150,000	1,450,000,000	442,500,000

The average annual crop of the same period has been:

Acres.	*Yield.*	*Value.*
44,948,000	1,220,000,000	475,075,000

During the same decade the corn crop of Pennsylvania has been as follows:

	Acres.	*Yield.*	*Value.*
1871,	1,105,706	39,254,000	$30,225,580
1872,	1,127,282	43,964,000	26,378,400
1873,	1,052,608	36,929,000	22,157,400
1874,	1,078,946	35,281,000	27,223,960
1875,	1,100,000	44,000,000	25,520,000
1876,	1,207,142	42,250,000	23,237,500
1877,	1,246,000	41,120,000	20,971,200
1878,	1,259,000	44,065,000	21,151,200
1879,	1,260,000	37,850,000	20,450,000
1880,	1,261,500	43,750,000	24,400,000

The annual yield per acre for each year of the same period has been:

	Bushels.		*Bushels.*
1871,	35.5	1876,	35
1872,	39	1877,	33
1873,	35.1	1878,	35
1874,	33	1879,	30.1
1875,	40	1880,	36.4

The returns of August and September, as received from our official reporters,* indicate that in Bradford, Clinton, Delaware, McKean, and Philadelphia, the corn crop of 1880 is below that of 1879; in Adams, Cumberland, Lebanon, and York, but little variation from the crop of 1879 is reported; and the returns from all of the other counties indicate an increase in the crop of 1880, when compared with that of 1879, varying from fourteen per cent. in Clearfield, to one per cent. in Armstrong, Bucks, Clarion, and Lancaster.

In Allegheny, Blair, Bucks, Cameron, Columbia, Delaware, Fayette, Lehigh, Monroe, Philadelphia, and Union, our reports indicate a crop less

* Four hundred in number, and appointed by the members of the Senate and House of Representatives.

than the average of the past five years. In Armstrong, Beaver, Bedford, Berks, Bradford, Carbon, Chester, Clinton, Crawford, Cumberland, Dauphin, Forest, Juniata, McKean, Mercer, Montour, Northampton, Northumberland, Potter, Snyder, and York, the crop is reported as equal to the average of the past five years. Other counties show an increase over the average crop of five years, varying from seven per cent., in Wayne, to one per cent., in Centre.

Throughout the greater portion of the State the weather in May and June was unfavorable to the growth of this crop. In some cases, dry weather soon after planting prevented the seed from sprouting properly, and whole fields were planted the second time. In some fields this effect was only observable in the drier portions, thus giving the field a "spotted" appearance, which the subsequent favorable weather could not make up. The failure to sprout was more apparent where the seed was covered with a hoe. Had May and early June been favorable for the early start and a good stand for this crop, we should have had to report the best for many years; as it was, wherever a good stand was secured a fair crop was harvested.

The counties of Armstrong, Lancaster, McKean, Montgomery, Philadelphia, and Westmoreland report a slight decrease in the acreage of the crop of 1879, as compared with that of 1880. Bedford, Berks, Bradford, Chester, Cumberland, Delaware, Franklin, Juniata, Lackawanna, Lawrence, Lebanon, Mercer, Snyder, Somerset, Wayne, and Wyoming report the acreage of 1880 as the same as that of 1879, while the other counties report an increase, varying from fifteen per cent. in Cameron and Clearfield, to two per cent. in Adams, Allegheny, Beaver, Bradford, Columbia, Dauphin, Lehigh, Lycoming, Mifflin, Monroe, Montgomery, and Northumberland. The greatest increase in acreage has been in Cambria, Cameron, Carbon, Clarion, Clearfield, Crawford, and Greene.

When the crop of 1880 is compared with the average acreage of the past five years, Berks and Philadelphia show a slight falling off; Adams, Armstrong, Beaver, Bedford, Blair, Bucks, Chester, Dauphin, Delaware, Lancaster, Lehigh, Luzerne, Lycoming, Mercer, Mifflin, Monroe, Montgomery, Snyder, and Susquehanna show no change; while all others report an increase varying from forty per cent. in Cameron to two per cent. in Allegheny, Centre, Clearfield, Erie, Fayette, Lawrence, Northampton, Northumberland, Somerset, and Wayne. This increase in acreage is greatest in Cameron, Cambria, Clarion, Elk, McKean, Pike, Potter, Sullivan, and Venango, where the temporary stagnation of other interests has compelled more attention to agriculture, and where new land has been brought under cultivation.

WHEAT.

The harvest of 1880 has added to the wheat yield of the United States the third of a successive series of unusual productive crops.

The average annual yield for the four preeeding years was three hundred and thirteen million six hundred and sixteen thousand five hundred bushels, the average of the past ten years (including 1880) is three hundred and forty million bushels. The erop of 1878 is given at four hundred and twenty million bushels, that of 1879 at four hundred and twenty-five million, while that of 1880 is estimated by good judges to be four hundred and thirty-five million, with a value of $325,150,000. For seed and for bread we will need three fifths of the erop, (two hundred and fifty million bushels,) leaving one hundred and eighty-four million, for which we must, in the form of grain or flour, seek a foreign market. The best European authorities estimate the deficieney in foreign erops at one hundred and seventy-five million bushels. Leading English statisties elaim that England will need one hundred and twenty million to supply her regular import, and the damaged erop of 1880, that Franee will need one hundred million, Norway and Sweden ten million bushels, and that all of this defieiency over and above one hundred and seventy-five million bushels will be made up from the surplus of the crops of Russia, Austria, and India.

The aereage, yield, and value of this crop in the United States during the past ten years has been as follows:

	Acres.	*Yield.*	*Value.*
1871,	19,940,000	230,730,000	$290,410,000
1872,	20,750,000	250,000,000	300,500,000
1873,	21,150,000	281,400,000	323,500,000
1874,	25,000,000	309,000,000	291,000,000
1875,	26,250,000	292,000,000	294,500,000
1876,	27,550,000	289,350,000	300,000,000
1877,	26,250,000	364,100,000	394,500,000
1878,	32,100,000	420,000,000	326,350,000
1879,	32,500,000	425,000,000	325,500,000
1880,	33,250,000	435,000,000	325,150,000

The average annual aereage, yield, and value for the same period has been:

Acres.	*Yield.*	*Value.*
26,474,000	32,965,800	$317,141,000

During the same decade the annual crops of Pennsylvania has been as follows:

	Acres.	*Yield.*	*Value.*
1871,	1,193,750	19,340,000	$28,042,000
1872,	1,074,351	11,603,000	19,377,000
1873,	1,095,000	15,548,000	23,322,000
1874,	1,124,000	16,636,000	20,130,000
1875,	1,101,000	15,200,000	19,608,000
1876,	1,419,000	18,740,000	23,425,000
1877,	1,400,000	18,200,000	24,750,000
1878,	1,473,000	22,095,000	21,432,000
1879,	1,475,000	22,250,000	22,275,000
1880,	1,485,000	21,750,000	21,750,000

The average annual acreage, yield, and value has been:

Acres.	*Yield.*	*Value.*
1,284,010	18,136,200	$22,411,100

The annual yield per acre during the same period has been as follows:

	Bushels.		*Bushels.*
1871,	16.2	1876,	13.2
1872,	10.8	1877,	13.
1873,	14.2	1878,	15.
1874,	14.8	1879,	15.7
1875,	13.8	1880,	14.4

Owing to dry weather and high winds during the early spring, our reports for April and May were not favorable to the wheat crop of 1880. The winter of 1879–80 was unusually favorable to the growth of the crop, and the reports in March gave promise of an immense crop. The ensuing dry weather so retarded the growth of the crop, that the yield of straw was less than that of the crop of 1879. Favorable weather later in the season caused a rapid growth, which at least, so far as the grain was concerned, obliterated the bad effects of early spring, and the crop of 1880 will fall but a little below that of 1879.

Taking our latest crop report as an index, we find that in Adams, Allegheny, Bedford, Blair, Bradford, Cameron, Centre, Clearfield, Elk, Franklin, Fulton, Greene, Juniata, Lackawanna, McKean, Perry, Pike, Potter, Schuylkill, Sullivan, Susquehanna, Tioga, Warren, and Wyoming, the yield has been below that of 1879. This falling off in yield has been greatest in Juniata, where it amounted to fifteen per cent., and least in Warren where it was two per cent.

Armstrong, Berks, Bucks, Butler, Cambria, Chester, Clarion, Clinton, Columbia, Dauphin, Delaware, Erie, Fayette, Huntingdon, Indiana, Jefferson, Lancaster, Lawrence, Lebanon, Lehigh, Luzerne, Lycoming, Mercer, Mifflin, Montgomery, Montour, Northampton, Northumberland, Philadelphia, Snyder, Somerset, Union, Venango, Washington, Wayne, Westmoreland, and York, report an increase in yield over last year, varying from twenty-five per cent. in Clinton, to two per cent. in Northampton.

Beaver, Cumberland, and Monroe, report the crop as varying very little from that of last harvest.

Lackawanna, Lancaster, Susquehanna, Wayne, and Wyoming, report a slight decrease in acreage, when compared with the crop of 1879. Berks Butler, Chester, Dauphin, Greene, Jefferson, Luzerne, and Montgomery, report the average the same as last year, while the other counties report an increase in acreage, varying from eleven per cent. in Fayette and Montour, to two per cent. in Clinton, Columbia, Forest, Jefferson, Lehigh, Northampton, Perry, and Potter. In many cases this increase in acreage is due to the failure of the clover of 1878. To re-seed these bare fields they were in some instances plowed up, and re-sown with wheat. No doubt the acreage of the crop put in this fall, will be increased to a still greater degree by the same cause.

When the crop of 1880 is compared with the average acreage of the past five years, Allegheny and Philadelphia show a slight decrease. Beaver, Bedford, Berks, Bucks, Chester, Cumberland, Dauphin, Delaware, Juniata, Lancaster, Lehigh, Luzerne, Lycoming, Montgomery, Perry, Susquehanna, Wayne, and Wyoming, report the acreage of 1880 as the same as the acreage of the past five years. Other counties report an increase, varying from twenty per cent. in Cameron and Cambria, to two per cent. in Armstrong, Fulton, and Mifflin.

OATS.

The acreage, yield, and value of the oats crop of the United States for the past ten years has been:

	Acres.	*Bushels.*	*Value.*
1871,	8,365,800	255,743,000	$102,570,000
1872,	9,000,769	271,747,000	91,315,710
1873,	9,571,000	270,340,000	101,175,750
1874,	10,897,412	240,369,000	125,047,530
1875,	11,915,075	354,317,000	129,499,900
1876,	13,358,908	320,884,000	112,865,000
1877,	12,826,148	406,394,000	118,661,550
1878,	13,176,500	413,578,000	101,945,830
1879,	13,125,000	364,283,600	120,855,000
1880,	12,975,000	374,125,690	117,250,000

The average annual acreage, yield, and value during the same time, has been:

Acres.	*Bushels.*	*Value.*
11,521,161	327,177,920	$112,118,628

The annual acreage, yield, and value of the crop in Pennsylvania during the same decade, has been:

	Acres.	*Bushels.*	*Value.*
1871,	1,017,580	31,545,000	$15,547,650
1872,	1,011,057	31,545,000	13,064,350
1873,	1,034,073	31,229,000	13,428,470
1874,	1,040,935	25,607,000	15,108,130
1875,	1,083,333	32,500,000	13,325,000
1876,	1,159,000	33,150,000	11,602,500
1877,	1,172,778	42,400,000	13,568,000
1878,	1,166,000	37,778,000	10,200,168
1879,	1,154,000	39,750,000	12,200,000
1880,	1,156,000	32,250,000	12,450,000

The average crop for the same period has been:

Acres.	*Bushels.*	*Value.*
1,099,475	33,775,400	$13,099,426

During the ten years the yield per acre has been as follows:

	Bushels.		*Bushels.*
1871,	31	1876,	28.6
1872,	31.2	1877,	36
1873,	30.2	1878,	32.4
1874,	24.6	1879,	34.4
1875,	30	1880,	29.9

The cash value per acre of the crop has been:

1871,	$15 19	1876,	$10 01
1872,	13 41	1877,	11 52
1873,	12 98	1878,	8 75
1874,	14 51	1879,	10 66
1875,	12 30	1880,	10 75

In Adams, Beaver, Bucks, Cameron, Centre, Chester, Cumberland, Dauphin, Delaware, Elk, Fulton, Greene, Juniata, Lackawanna, Lancaster, Lawrence, Lebanon, Lehigh, Luzerne, Lycoming, McKean, Monroe, Montgomery, Montour, Northampton, Perry, Philadelphia, Schuylkill, Snyder, Susquehanna, Venango, and York, dry weather about seeding time and at the time the grain was filling, shortened the crop both in yield and weight per bushel. Allegheny, Clarion, Fayette, Forest, Indiana, Mercer, Northumberland, and Wyoming report but little variation from the crop of last year; other counties report a slight increase.

When compared with the average acreage of the past five years, thirteen counties report no change; twenty-two counties report a decrease varying from ten per cent. in Washington to two per cent. in Bucks, Northumberland, and Schuylkill. All other counties report an increase or acreage over the average of the past five years varying from thirty per cent. in Cameron to two per cent. in Butler, Carbon, Crawford, Franklin, Fulton, and Juniata.

POTATOES.

The national acreage, yield, and value of this crop during the past ten years has been:

	Acres.	*Bushels.*	*Value.*
1871,	1,220,912	120,461,700	$71,836,671
1872,	1,331,331	113,516,000	68,091,120
1873,	1,295,139	106,089,000	74,774,890
1874,	1,310,041	105,931,000	71,823,330
1875,	1,510,041	166,877,000	65,019,420
1876,	1,741,983	124,827,000	83,861,390
1877,	1,792,287	170,092,000	76,249,500
1878,	1,776,800	124,126,650	73,059,125
1879,	1,779,750	181,360,000	78,971,000
1880,	1,775,000	167,530,000	76,570,600

The average crop during the same period has been:

Acres.	*Bushels.*	*Value.*
1,553,328	138,088,035	$74,026,643

During the same series of years the acreage, yield, and value of the crop in Pennsylvania has been:

	Acres.	*Bushels.*	*Value.*
1871,	104,901	11,749,000	$6,461,950
1872,	112,737	11,161,000	7,031,430
1873,	110,437	10,602,000	6,891,300
1874,	109,797	9,223,000	7,286,170
1875,	127,604	12,250,000	5,145,000

	Acres.	Bushels.	Value.
1876,	136,000	6,800,000	5,780,000
1877,	150,000	13,500,000	5,805,000
1878,	154,500	8,961,000	6,272,000
1879,	153,750	9,750,000	6,575,000
1880,	151,750	9,125,000	6,275,000

The average acreage, yield, and value of the crop was:

Acres.	Bushels.	Value.
131,147	10.331,100	$6,352,285

The annual cash value per acre of the crop in Pennsylvania has been:

1871,	$61 60	1876,	$42 50
1872,	62 37	1877,	38 70
1873,	62 40	1878,	40 60
1874,	66 36	1879,	37 76
1875,	40 32	1880,	40 26

The potato crop of the State for 1880 has shortened, by a partial failure of the early planting, but as the proportion of early potatoes is very small, this loss is fully made up by more favorable weather for the later crop.

In Adams, Blair, Bucks, Clarion, Delaware, Elk, Fayette, Lackawanna, Lebanon, Luzerne, Monroe, Montgomery, Philadelphia, Schuylkill, Snyder, Tioga, Venango, Washington, and Wayne, a small falling off, varying from three per cent. in Fayette, Lackawanna, Lebanon, Schuylkill, Tioga, and Venango, to twelve per cent. in Delaware. This decrease is more than counterbalanced by a gain in thirty-one counties, varying from ten per cent. in Allegheny, Butler, Erie, Franklin, Huntingdon, and York.

Sixteen counties report the total crop as about the same as last year. Twenty counties report the crop of 1880 as below the average of five years, twenty-nine report it above the average of ten years, and the remainder report it as an average crop.

BUCKWHEAT.

The annual national acreage, yield, and value of this crop for the past ten years has been:

	Acres.	Bushels.	Value.
1871,	413,915	8,328,704	$6,900,268
1872,	448,497	8,133,500	6,747,618
1873,	454,152	7,837,520	6,382,043
1874,	452,590	8,016,600	6,447,885
1875,	575,530	10,082,100	7,166,267
1876,	666,441	9,668,800	7,021,498
1877,	649,923	10,177,000	6,998,810
1878,	673,100	12,246,820	6,454,120
1879,	674,250	13,145,650	7,860,488
1880,	673,750	11,450,000	6,788,000

The average crop for the same period has been:

Acres.	Bushels.	Value.
568,215	9,908,669	$6,876,699

The annual acreage, yield, and value of the crop of Pennsylvania during the same period have been:

	Acres.	*Bushels.*	*Value.*
1871,	97,150	2,050,000	$1,906,500
1872,	107,600	2,152,000	2,091,360
1873,	103,692	2,022,000	1,698,480
1874,	101,078	2,062,000	1,752,700
1875,	110,000	2,320,000	1,600,800
1876,	154,411	2,100,000	1,554,000
1877,	175,000	2,800,000	1,904,000
1878,	170,000	2,720,000	1,496,000
1879,	171,000	2,718,000	1,500,000
1880,	172,250	2,812,000	1,775,000
Average,	136,270	2,275,000	1,727,500

The average annual yield per acre during the same decade has been:

	Bushels.		*Bushels.*
1871,	21.1	1876,	13.6
1872,	20	1877,	16
1873,	19.5	1878,	16
1874,	20.4	1879,	15.8
1875,	20	1880,	16.2

HAY.

The hay crop of the United States has been as follows:

	Acres.	*Tons.*	*Value.*
1871,	19,009,052	22,239,400	$351,717,035
1872,	20,318,936	23,812,800	345,969,079
1873,	21,894,084	25,085,100	339,895,486
1874,	21,769,722	24,133,900	331,420,738
1875,	23,507,964	27,873,600	342,203,445
1876,	25,282,797	30,867,100	300,901,252
1877,	25,367,708	31,629,300	271,934,950
1878,	26,931,300	39,608,296	285,543,752
1879,	26,950,000	35,648,000	320,851,280
1880,	27,125,000	34,500,000	331,500,000

The average acreage, yield, and value has been:

Acres.	*Tons.*	*Value.*
23,815,656	29,540,000	$322,694,701

The annual hay crop of Pennsylvania has been:

	Acres.	*Tons.*	*Value.*
1871,	2,204,301	2,050,000	$42,558,000
1872,	2,133,673	2,091,000	47,758,440
1873,	2,127,304	2,446,400	43,545,920
1874,	2,087,845	2,421,900	41,293,395
1875,	2,181,818	2,400,000	41,088,000
1876,	2,357,723	2,900,000	35,264,000
1877,	2,516,667	3,020,000	29,294,000
1878,	2,650,000	4,107,000	33,106,450
1879,	2,575,000	3,275,000	31,725,000
1880,	2,550,000	2,450,000	36,250,000

The verage yield per acre and priee per ton has been:

	Pounds.	Price per ton.		Pounds.	Price per ton.
1871,	1,860	$20 76	1876,	2,460	$12 16
1872,	1,960	22 84	1877,	2,400	9 70
1873,	2,300	17 80	1878,	3,100	8 06
1874,	2,320	17 05	1879,	2,220	9 67
1875,	2,200	17 12	1880,	1,530	14 75

The crops of the eight largest hay producing States, as given in the report of the National Department of Agriculture, is as follows:

	Acres.	Tons.	Value.
New York,	4,800,000	6,480,000	$48,076,800
Pennsylvania,	2,650,000	4,107,500	33,106,450
Iowa,	1,980,000	3,564,000	12,830,000
Illinois,	2,370,000	3,531,300	18,150,882
Ohio,	2,008,000	3,032,080	19,769,162
Indiana,	1,200,000	1,680,000	10,180,800
Missouri,	1,000,000	1,620,000	10,416,600
Minnesota,	936,000	1,609,920	7,614,922

The dry weather of early spring, coupled with the alternate thawing and freezing of the previous winter, very materially shortened the Pennsylvania hay crop of 1880. In some of our leading hay-produeing counties, this partial failure was increased by the fact that the grass was destroyed in many of the stubbles of the previous year. In faet, the hay crop of 1880 eontained less clover than any previous crop for twenty years. In a number of eounties, it may be said that the erop of clover hay was searcely worth eutting.

Blair, Crawford, Erie, Franklin, Lawrenee, Tioga, and Warren, report a total crop about equal to that of last year. Clearfield, Clinton, Somerset, and Westmoreland report a slight increase on the erop of 1879, while all the other counties report a falling off varying from forty-nine per eent. in Allegheny to three per cent. in Bradford. Twenty-one counties report the erop at or below seventy-five per eent. of that of 1879. Fifty-eight eounties report the erop of 1880 as below the average of the past five years; and of the others, Berks, Clearfield, Crawford, Franklin, and Union report an average erop of last five years, while Clarion, Somerset, and Warren report a slight increase upon the average crop of past five years.

TOBACCO.

The average yield and value of this erop in Pennsylvania during the past ten years has been as follows:

	Acreage.	Yield.	Value.
1871,	2,826	3,392,000	$515,548
1872,	11,346	14,750,000	2,153,500
1873,	12,640	15,000,000	1,845,000
1874,	9,130	10,500,000	1,575,000
1875,	11,428	16,000,000	1,600,000
1876,	9,565	13,200,000	1,188,000
1877,	15,450	20,000,000	1,900,000
1878,	19,000	22,800,000	2,275,000
1879,	22,375	31,000,000	4,575,000
1880,	26,670	38,750,000	4,700,000

The average acreage, yield, and value for the same period has been:

Acres.	*Yield.*	*Value.*
14,043	18,539,200	$2,233,704

The annual yield per acre of the crop of Pennsylvania has been:

1871,	1,200 pounds.	1877,	1,235 pounds.
1872,	1,300 "	1878,	1,200 "
1873,	1,186 "	1879,	1,450 "
1874,	1,150 "	1880,	1,300 "
1875,	1,400 "		
1876,	1,380 "		

Average for the ten years, 1,283 pounds.

The rapid and steady increase in the acreage of the tobacco crop of the State has been a cause of much comment at home and abroad, and the credit of Pennsylvania tobacco having been fairly established, the market seems capable of absorbing all that is offered.

The well known exhaustive character of the crop has caused some fears as to the ultimate result of its introduction into our rotation, and the worn-out fields of the southern tobacco-growing States are made use of as a warning of what may be expected from its general and prolonged culture, but we have more faith in the average Pennsylvania farmer than to suppose that the improvement which he has kept up with other crops will be excluded with this one. Any crop is exhaustive if it is removed from the field, but it is by no means impossible to replace, in some other form, all of the elements of even the most exhaustive crop. If by manures or fertilizers from outside of the farm its fertility can be kept up, we may safely trust to the laws of supply and demand to regulate the production of this and other crops. As with other crops, there will be failures with this, but our farmers are learning that there is a limit to the acreage which can be profitably handled by the hands on an ordinary farm, and we think that in the future over-cropping will not, as in the past, be one of the prominent causes of failure.

LIVE STOCK.

During the past ten years there has been a gradual and permanent improvement in all classes of live stock, but most noticeable among horned stock and sheep. The influence of such herds as Cooper's in Lehigh, Harvey and Sharpless in Chester, Singerly and Sharpless in Montgomery, Young in Dauphin, Coleman in Lebanon, and others, are not without their effect, not only in their own immediate neighborhood, but throughout the State at large. The sight of improved stock begets a desire for it, and the competition which exists, especially among Jersey breeders, enables our stock breeders to permanently improve their herds at a comparatively small expense. In the stock of hogs raised in the State this improvement is also very evident, and is shown more in the ease of fattening and smaller amount of food consumed than in the form or size of the animals themselves. The gradual decrease during the past ten years in the values of all articles produced on the farm, in some measure, prevents this increase

in value from being shown by the average value per head, but that it does exist must be admitted by all.

The number, value per head, and the total value of the different classes of live stock in the State during the past year, may be given as follows:

	Number.	*Value per head.*	*Total value.*
Horses,	616,750	$62 83	$38,750,000
Cows,	851,750	24 12	18,625,000
Oxen and cattle,	674,000	22 20	14,962,000
Swine,	926,000	6 15	5,694,000
Sheep,	1,875,000	3 00	5,625,000
Mules,	24,950	76 75	1,914,912

HORSES.

The number, estimated value per head, and total annual value of the horses of the State, for the past ten years, have been as follows:

	Number.	*Value per head.*	*Total value.*
1871,	546,100	$97 18	$53,069,998
1872,	546,100	102 46	55,953,406
1873,	557,000	99 43	55,382,510
1874,	573,700	93 76	53,790,112
1875,	585,100	84 70	49,557,970
1876,	590,900	75 66	44,707,494
1877,	614,500	72 97	44,840,065
1878,	614,500	66 79	40,735,205
1879,	616,250	65 25	40,210,312
1880,	616,750	62 83	38,749,425

The average number, value per head, and total value during the same period, have been:

Number.	*Value per head.*	*Total value.*
586,190	$82 04	$48,091,027

MULES.

The annual number, average value per head, and total value of the mules of the State for the past ten years have been, according to national authority, as follows:

	Number.	*Value per head.*	*Total value.*
1871,	24,900	$130 21	$3,242,329
1872,	24,900	128 32	3,195,168
1873,	24,900	127 08	3,164,292
1874,	25,000	117 89	3,017,984
1875,	26,300	96 15	2,528,745
1876,	26,000	90 57	2,354,820
1877,	25,700	87 02	2,236,414
1878,	24,900	79 82	1,987,518
1879,	24,850	79 75	1,981,787
1880,	24,950	76 75	1,914,912

The average number, value per head, and the total value during this period, have been:

Number.	*Value per head.*	*Total value.*
25,640	$101 35	$2,598,514

Adams, Armstrong, Berks, Blair, Bucks, Centre, Clearfield, Clinton, Columbia, Cumberland, Elk, Forest, Franklin, Fulton, Greene, Lebanon, Lycoming, McKean, Mifflin, Monroe, Montgomery, Northampton, Northumberland, Philadelphia, Potter, Schuylkill, Snyder, Washington, and Wyoming report horses in not as good condition as last year. Allegheny, Cameron, Chester, Clarion, Crawford, Lancaster, Lehigh, Luzerne, Mercer, Montour, Union, Wayne, and Westmoreland report no change, and all other counties report an increase in condition, varying from seven per cent., in York and Juniata, to one per cent., in Delaware, Lackawanna, and Tioga. Mules follow horses very closely in their reputed condition.

As compared with the average of the past five years, Armstrong, Beaver, Berks, Clearfield, Dauphin, Greene, Lancaster, Lehigh, Luzerne, Lycoming, Northampton, Schuylkill, Snyder, Tioga, and Wyoming report a falling off in condition, while Allegheny, Cambria, Crawford, Jefferson, Juniata, Lawrence, Mercer, Philadelphia, Pike, Somerset, and York report an increase in the average condition of their horses. All other counties report but little, if any change. The same report will apply equally well to mules.

COWS.

The number, value per head, and total value of the cows of the State are as follows:

	Number.	*Value, per head.*	*Total value.*
1871,	788,900	$39 16	$30,893,324
1872,	796,700	35 50	28,282,850
1873,	812,600	33 25	27,018,950
1874,	828,800	35 42	29,356,096
1875,	837,000	34 68	29,027,160
1876,	845,300	34 50	29,162,850
1877,	836,800	33 52	28,049,536
1878,	828,400	20 26	16,783,384
1879,	839,500	22 00	18,469,000
1880,	851,750	24 12	18,625,000

During this period the average number, value per head, and total value have been:

Number.	*Value per head.*	*Total value.*
826,575	$31 24	$25,882,103

Adams, Allegheny, Armstrong, Bedford, Blair, Bradford, Cameron, Centre, Chester, Clarion, Clearfield, Columbia, Delaware, Elk, Lackawanna, Lancaster, Lehigh, Luzerne, Lycoming, Northampton, Northumberland, Pike, Potter, Snyder, Somerset, Susquehanna, Tioga, and Westmoreland report cows not in as good condition as last year, and attribute it to short pasture, caused by long continued dry weather. Franklin, Huntingdon, Indiana, Warren, Washington, Wyoming, and York report no change when compared with condition at same time last year. All other counties report an improvement in condition varying from twelve per cent. in Juniata to one per cent. in Dauphin, Fulton, and Perry.

When compared with the average of the past five years, Adams, Allegheny, Bedford, Bradford, Bucks, Carbon, Centre, Clarion, Clinton, Columbia, Cumberland, Delaware, Elk, Forest, Huntingdon, Indiana, Lancaster, Luzerne, Lycoming, Pike, Potter, Somerset, Sullivan, Susquehanna, Venango, Wayne, and Westmoreland report a slight decrease in condition, while Armstrong, Beaver, Berks, Clearfield, Dauphin, Fulton, Jefferson, Lehigh, McKean, Montour, Northumberland, Perry, Snyder, Tioga, Washington, and Wyoming report no change. All other counties report a gain in condition varying from seven per cent. in Juniata to one per cent. in Chester, Greene, Lebanon, Northampton, and Union. The short pasture of late summer and fall causes this class of stock to show an unfavorable comparison with other years.

OXEN AND OTHER CATTLE.*

The number, value per head, and total value of this kind of stock in Pennsylvania are given as follows:

	Number.	*Value per head.*	*Total value.*
1871,	722,800	$31 01	$22,414,028
1872,	715,500	30 13	21,558,015
1873,	722,600	26 49	19,141,674
1874,	722,600	28 31	20,456,806
1875,	708,100	29 03	20,556,143
1876,	701,100	26 01	18,233,010
1877,	693,900	25 82	17,916,498
1878,	687,000	23 58	16,199,460
1879,	682,500	23 00	15,706,000
1880,	674,000	22 20	14,962,000

During the same decade, the average number, value per head, and total value have been:

Number.	*Value per head.*	*Total value.*
703,010	$26 55	$18,667,205

SWINE.

The number, value per head, and total value of the swine of the State for the past ten years have been as follows:

	Number.	*Value per head.*	*Total value.*
1871,	1,099,009	$6 67	$7,336,333
1872,	1,088,900	8 12	8,841,868
1873,	1,034,400	6 62	6,847,728
1874,	930,900	9 80	9,122,280
1875,	875,000	11 50	10,062,500
1876,	901,200	9 48	8,543,376
1877,	975,000	8 36	8,151,000
1878,	927,800	5 79	5,371,962
1879,	927,500	6 25	5,796,875
1880,	926,000	6 15	5,694,000

*Under this head are included all oxen, cattle, and young stock which are not properly classed as cows.

The average number, value per head, and total value have been—

Number.	*Value per head.*	*Total value.*
968,570	$7 87	$7,622,645

SHEEP.

The annual number, value per head, and total value of the sheep of Pennsylvania during the past ten years have been—

	Number.	*Value per head.*	*Total value.*
1871,	1,674,300	$3 41	$5,709,363
1872,	1,691,000	3 68	6,222,880
1873,	1,674,000	3 20	5,356,800
1874,	1,674,000	3 62	6,059,880
1875,	1,640,500	3 58	5,872,990
1876,	1,607,600	3 17	5,096,092
1877,	1,601,000	3 09	4,967,484
1878,	1,666,000	2 99	4,981,340
1879,	1,850,000	2 95	5,212,500
1880,	1,875,000	3 00	5,625,000

The average, annual number, value per head, and total value are—

Number.	*Value per head.*	*Total value.*
1,680,000	$3 27	$5,520,433

CENSUS OF THE INDUSTRIES OF PHILADELPHIA.

TABLE OF THE MANUFACTURING INDUSTRIES OF PHILADELPHIA,

As collected by William Arrott, Chief Special Agent, and his assistants. (These industries are located within the city limits, and do not embrace manufacturers whose offices only are in Philadelphia):

NAME OF BUSINESS, MANUFACTURE OR PRODUCT.	Number of establishments.	Capital.	Greatest number of hands employed.	Wages paid.	Value of material.	Value of product.
Agricultural implements, lawn mowers, shovels, spades, etc.,	10	$479,700	400	$190,247	$420,948	$797,101
Ammunition, fire-arms, fishing tackle, gunsmiths, etc..	13	104,600	126	48,246	42,850	134 900
Artificial limbs, trusses & surgical appliances,	13	92,300	173	64,522	90,812	209,973
Bakeries of all kinds,	858	2,668,208	2,508	941,712	3,653,425	5,8 3,186
Baking powders yeast, essences, extracts, etc.,	11	3.9,000	156	50,959	135,472	259,868
Bags and bagging,	6	198.300	172	49,465	48[illegible],520	555,000
Bagging and baling flour, hay, etc.,	16	78,000	40	17,032	164,700	210,600
Billiard and pool tables,	3	25,000	16	10,800	26,300	49,700
Blacksmithing and wheelwrighting,	302	5 0,555	852	354,496	431,439	1,093,230
Book-binding and blank books,	54	849.250	1,857	551,369	757,017	1,674,450
Boots, shoes, and findings,	604	3,106.915	8,837	2,906,486	4,734,663	9,264,462
Brass works and brass finishing,	44	977,451	779	293,670	993,366	1,600,768
Brick yards and tile works,	70	2,114,853	3,156	822,050	412,777	1,574,091
Brooms, brushes, dusters, etc.,	62	459,331	758	191,819	416,281	789,679
Buttons, pearl and other kinds, and pearl goods,	18	158,000	683	168,013	146,839	389,657
Canned goods,	8	327,000	683	78,247	524,109	677,575
Carpenters and builders,	329	1,574,130	4,676	1,382,011	3,673,223	5,229,350
Carriages, wagons, and repairing,	106	2,530,200	2,660	1,010,488	1,473,298	3,098,314
Cigars and tobacco,	473	1,412,6 6	2,521	822,149	1,141,255	2,877,468
Cigar boxes and molds,	13	20,450	67	18,434	57,610	115,612
Chandeliers, gas fixtures, lamps, etc.,	14	319,750	422	166,517	124,135	443,294
Chemical apparatus, crucibles, etc.,	9	258,250	140	44,930	227,871	326,808
Clothing, men's and children's,	416	8,609,526	18,946	4,115,350	11,792,818	18,240,032
Clothing, ladies' suits and underwear,	56	822,600	3,275	507,245	1,542,073	2,441,940
Coffee roasting,	7	78,000	39	21,852	347,386	392,486
Coffins and undertakers' supplies,	35	206,600	156	74,284	133,570	3.4,406
Confectionery and ice-cream,	163	1,214,840	1,450	334,833	1,744,034	2,581,251
Coopers,	72	425,400	794	259,170	638,245	997,301
Coppersmiths,	7	143,000	106	46,104	139,145	236,623
Cordage, twines, etc.,	10	925,500	717	220,033	1,236,700	1,541,748
Corks,	9	48,309	79	20,264	31,560	68 300
Corsets and skirts,	13	80,3.0	263	52,018	172,061	268,505
Cotton, woolen, and mixed goods, (including print works,)	257	21,193,905	21,493	7,750,092	27,982,501	39,465,390
Carpets, other than rag,	169	11,994,383	13,591	3,009,131	8,977,700	20,3 4,826
Carpets, rag,	59	66,375	182	50,034	97,619	197,260
Chemicals, (including soap and candles,)	64	12,570,971	3,093	1,512,645	9,593,792	14,945,821
Dental and surgical instruments and supplies,	21	960,100	496	240,576	223,209	801,450
Dyeing and bleaching, job dyeing, etc.,	56	1,298,800	1,366	589,518	1,338,858	2,651,123
Electric, telegraphic, and telephonic apparatus,	6	80,000	73	19,243	58,993	93,610
Electro-plating, gold, silver, nickel, etc.,	22	137.463	120	45,242	77,798	162,201
Electrotyping and stereotyping,	4	166,000	165	71,732	41,205	161,500
Engraving, copper, steel, wood, etc.,	43	132,668	340	123,361	101,893	356,511
Engraving, seal-die working, stencils, steel, brass, and rubber stamps,	20	84,400	102	40,788	22,532	107,843
Felting,	8	69,500	90	23.594	38,935	87,500
Fertilizers, bone-boiling, etc.,	7	63,600	111	34,345	142,950	220,050
Florists,	128	809,000	684	134,813	211,945	547,170
Flour and grist-mills,	17	257,800	110	40,323	1,690,232	1,968,925
Food, farinaceous, starch, etc.,	8	29,500	42	11,814	31,500	71,890
Furniture of all kinds,	221	3,156,623	3,630	1,463,351	2,656,387	5,201,830
Furriers,	17	234,500	257	67,700	300,000	439,700

TABLE OF THE MANUFACTURING INDUSTRIES OF PHILADELPHIA—*Continued.*

NAME OF BUSINESS, MANUFACTURE OR PRODUCT.	Number of establishments.	Capital.	Greatest number of hands employed.	Wages paid.	Value of material.	Value of product.
Galvanizing,	8	$586,500	411	$161,3 2	$1,142,900	$1,444,375
Gas, coke, and tar,	3	11,75 ,288	1,824	1,055,672	1,560,177	3,461,511
Gas meters and apparatus,	8	413 500	333	152,4 3	2 2,358	4 9,904
Glass, stained and ornamental,	12	74,1 0	215	66,875	54,4 8	161,057
Glass,*	8	1,197,419	2,237	871,445	509,969	1,660,957
Gents' furnishing goods, neckwear, drawers, shirts, etc.,	70	832,031	3,171	621,434	1,324,140	2,27 ,218
Gold leaf,	6	2 9,000	329	133,000	317,750	489 844
Hardware, not specified,	25	782,700	919	357,924	549,692	1,124,818
bolts, nuts, and washers, not specified,	3	515,5 0	479	166,620	474,740	84 .584
bricklayers', plasterers', and masons' tools,	6	48 250	36	15.790	14,524	43,700
carriage bolts, axles, springs, etc.,	15	518,500	793	194,3 9	413,684	718,272
cutlery and edged tools,	41	1,235,642	1,013	401,448	344,796	1,051,225
locks,	7	179,000	162	75,708	66,3 8	179,221
saws and files,	16	1,633,25	1,53	699,831	7 8,358	1,827,16
Harness, saddlery, whips, mountings, etc.,	129	362,714	595	19 ,675	388,138	779,4 9
Hats, caps, and hatters' materials,	2	810,653	1,289	473,737	710.793	1,340,869
Heaters, ranges, stoves, etc.,	105	2,327.967	1,75	649.453	1,052 588	2,247,217
Hides, tallow, and fat,	10	326 195	86	43,379	1,101,443	1,234,398
Hosiery and knit goods,	130	3,9 3,540	10,538	2,571.247	5,728,903	9,09 ,047
Human hair goods,	14	73,0 4	8	19,727	37,36	75,187
Ice-cream freezers,	5	52,492	33	7,988	4 ,495	68,071
Inks, writing and printing,	12	4 5,800	111	66,468	188,875	375,4 50
Iron works and castings, not specified,	39	2,764,771	2,757	1,205,743	1,556,809	3,452,161
Iron, rolling-mills and steel works, †	14	2,999,244	2,068	1,045,569	2,58 ,510	4,250,179
Iron, railings, etc.,	14	135,45	150	49,649	8 ,713	165,032
Jewelry, watch cases, clocks, repairing, etc.,	55	933,141	945	428,159	824,791	1,687 382
Kindling wood,	27	93,559	151	37,386	92,298	167,220
Lard, lard oils, and refining,	3	360,000	88	32,131	1,16 ,000	1,262,000
Lead pipe, sheet lead, and shot,	3	365,000	35	23,076	62 ,500	758,000
Leather, tanned and curried,	30	781 8 5	339	156,6 0	1,049 341	1,379 340
Leather, morocco, calf, kid, sheep-skins, etc.,	50	2,478,3 0	2, 43	1,096,658	4,719,915	6,447 886
Leather belting, shafting, and hose,	13	543,014	189	83,523	431,2 4	647.771
Leather works, fancy articles, pocket-books, etc.	14	292,000	633	150,671	278,950	508 7 0
Locksmithing, bell-hanging, etc.,	18	2 ,000	33	12,3 8	8,68	3 ,973
Lumber and saw-mills, doors, sash, blinds, etc.	86	1,789,541	1,568	584,86	1,505 563	2,43 974
Machinery and repairing, not specified,	102	2,877,481	2,015	763.5 6	933,419	2 277.012
Machinery, cotton and wool,	3	1,156,354	1,173	420,223	535, 35	1,362.498
Machinery, engines and boilers,	25	4,038,770	3,749	1,624,741	2,515,587	4,845.245
Machinery, hydraulic and hoisting,	4	97,000	111	41,619	69,455	140,511
Machinery, mill, wood-working, & grindstones,	11	2 0,161	281	95.381	154,357	3 8 962
Machinery, printing,	5	141,000	63	3 ,136	17,798	59,185
Malting,	18	2,075,000	255	79,902	1,441,23	1,879,46
Malt and kiln builders,	3	8,590	2	5,044	13,057	21,678
Marble and granite works and slate mantels,	108	1,905,338	1,7 7	682,073	991.910	2,044.720
Masonry, bricklaying, stone-cutting, etc.,	48	169 2 0	816	2 4,99	327,740	761.164
Matches,	3	106,300	72	14.393	69,455	184,000
Mattresses and bedding,	27	1 4,4 0	173	46,77	236.44	311.299
Millinery and artificial flowers,	75	581,550	1,245	194 953	746.495	1,155,413
Mineral and artificial waters, bottling, etc.,	12	93,000	170	56,338	118,07	224 115
Medicines, patent and pharmaceutical, etc.,	66	2,92 ,017	673	297,016	1,838,639	2,729 371
Metal works, metal spinning, etc.,	14	216,600	242	65,591	97,793	2 4 532
Moldings, looking-glass & picture frames, etc.,	56	6 8,943	859	318 727	566,117	1.187.600
Mustard, pickles, sauces, spices, vinegar, etc.,	21	477,185	218	81,898	778,412	1,05 ,240
Musical instruments, organs, pianos, etc.,	20	225,700	236	115.501	97,177	284,372
Oils and refining,	19	1,682,200	2 702	69 ,488	5,857.529	7,382 912
Paints, varnishes, etc.,	2	1,386,6 2	401	132.619	1,625 273	1,465 373
Painting, house, sign, and all kinds,	2 7	458 52	2,148	644,2 2	515,879	1,488 311
Paper-mills,	8	1,460,000	715	248,85	1,073,006	1,86 ,025
Paper bags and boxes, labels, tags, collars, etc.,	55	1,258,133	2,3 2	467,3 6	1,487,524	2,4 8,528
Paper-hanging, window-shades, blinds, etc.,	136	1,187,050	1,266	37 ,320	7 7 106	1,509 927
Patterns and models,	15	30,05	83	20,12	8,501	57,284
Photographing,	50	308,4 0	355	123,997	147,09	397,320
Pipes and smoking articles,	5	70,80	283	83,765	67,000	2 0,300
Plastering,	28	30,150	168	34,736	3 ,860	108,434
Plumbing, steam and gas-fitting,	243	841,744	1,40	426,6 0	796,8 3	1,583,495
Pottery and stoneware,	7	237,500	237	76,700	4 ,410	187,900
Printing, publishing, lithographing of all kinds,	192	6,213,681	5,968	2,3 5,3 3	3,053,789	7,45 ,096
Railway car works and supplies,	17	2,49 ,922	1,766	685,947	3,136,420	4,39 ,936
Roofing—other than tin,	40	175,82	331	98.956	144.926	322,363
Safes, fire-proof,	4	117,000	117	67,50	49,515	195,930
Sails, tents, flags, awnings, etc.,	32	245 95	496	133,264	3 8 026	57 ,306
Sand-paper, glue, curled hair, axle grease, etc.,	6	1,68 ,800	628	165,902	1,244,7 0	1,70 ,89

TABLE OF THE MANUFACTURING INDUSTRIES OF PHILADELPHIA—*Continued.*

NAME OF BUSINESS, MANUFACTURE OR PRODUCT.	Number of establishments.	Capital.	Greatest number of hands employed.	Wages paid.	Value of material.	Value of product.
Scales and testing machines,	7	$123,000	163	$77,511	$56,350	$195,500
Scientific, philosophical, nautical instrum'ts, etc	12	176,700	178	93,311	57,900	238,500
Sewing machines, attachments, and repairing,	5	1,145,300	458	211,500	206,650	1,192,332
Shoe-blacking and dressing,	6	226,297	220	62,433	265,061	556,466
Show cards, glass signs, etc.,	12	116,480	155	54,055	45,115	188,649
Show cases,	7	19,950	39	18,116	25,340	59,015
Ship and boat building, shipsmithing, etc.,	26	2,157,100	3,549	1,196,057	2,229,370	3,794,132
Silver, silver-plated and britannia ware,	12	191,000	215	82,485	128,842	284,324
Silk,	31	1,361,900	3,243	614,620	1,609,385	3,006,342
Smelting and refining,	5	122,500	52	27,476	644,549	782,820
Society goods, regalias, etc.,	13	109,390	247	45,085	94,785	193,134
Soda water apparatus,	3	164,060	54	30,000	74,510	130,000
Slaughtering and meat-packing,	482	3,343,080	1,245	438,330	14,798,475	16,236,148
Steam gauges, injectors, etc.,	6	68,500	55	21,286	16,439	56,300
Steam packing,	4	22,000	24	9,746	24,000	42,400
Straw goods, straw hats, etc.,	10	65,250	434	73,845	194,402	361,444
Street-car and repair shops,	17	412,870	289	168,927	185,394	368,189
Sugar and refiuing,	11	6,672,000	1,122	475,017	21,943,943	23,293,929
Terra cotta work and plaster ornaments,	11	315,800	168	63,340	70,590	272,650
Tin and sheet-iron works and japanning,	253	834,685	1,893	568,287	932,403	1,872,726
Toys, novelties, etc.,	8	99,100	306	54,268	46,525	179,386
Toilet articles, combs, brushes, etc.,	7	74,000	103	37,640	54,298	112,819
Trunks, valises, traveling-bags, etc.,	20	118,700	167	62,815	157,722	275,747
Turning and carving, wood, bone, ivory, etc.,	35	368,300	714	204,253	258,134	606,958
Type foundries and printers' supplies,	8	814,700	330	148,974	95,998	429,297
Umbrellas, parasols and canes,	26	1,353,200	1,944	471,874	1,771,956	2,781,160
Upholstering,	69	188,500	366	1 4,698	290,100	549,930
Washing machines,	3	2,500	8	1,700	350	4,052
White g· ods, laces, ruches, rufflings, etc.,	12	161,500	958	92,473	467,943	704,798
Wire goods,	16	197,750	237	84,116	179,941	352,332
Wooden and willow ware,	19	201,750	182	52,004	74,340	170,615
Wool pulling,	6	37,500	40	13,710	113,500	140,500
Establishments as per note below,	26	1,73?,450	1,012	334,240	1,835,310	2,939,007
Totals,	9,050	186,686,934	197,964	63,027,832	202,566,644	322,984,461

NOTE.—The above twenty-six establishments are consolidated, in order not to reveal the business of any one manufacturer. They consist of: One each—steel pens, olcomargarine, calcined and ground minerals, stair rods, portable forges, soapstone, compressed fuel, asphalt pavement, brick machines, spice and drug-mill machinery, wood carpeting, and taxidermists. Two each—Lightning-rods, snuff, kid gloves, iron sash, ventilators, etc., steam carpet cleaning, cheese, butter and condensed milk, and oil-cloths.

† Rolling-mills and steel-works taken by James M. Swank, special agent, Philadelphia.

* Glass industry taken by Joseph D. Weeks, special agent, Pittsburgh, Pennsylvania. Breweries and distilleries, steam railroad and repair shops, fisheries and quarries to be returned by agents specially appointed.

The above table has been compiled hurriedly, and is subject to revision and correction by the census office.

IMPORTS AND EXPORTS OF THE UNITED STATES.

Summary statement of the imports and exports of the United States for the twelve months ended December 31, 1880, compared with the corresponding periods of 1879. Prepared by the United States Bureau of Statistics, (corrected to February 9, 1881.)

IMPORTS OF MERCHANDISE.

[Abbreviation: n. e. s., not elsewhere specified.]

ARTICLES.	QUANTITIES. TWELVE MONTHS, ENDED DECEMBER 31.		VALUES. TWELVE MONTHS, ENDED DECEMBER 31.	
	1880.	1879.	1880.	1879.
FREE OF DUTY:			*Dollars.*	*Dollars.*
Argols, lbs.,	13,883,193	13,879,735	2,171,541	1,910,870
Articles, the produce or manufacture of the United States, brought back, n. e. s.,			5,399,257	4,378,6 3
Barks:				
Medicinal—Peruvian, calisaya, Lima, &c., lbs.,	4,638,346	6,277,336	1,505,374	1,945,411
Barks used for tanning,			543 834	380,445
Cork bark and wood, unmanufactured,			725 968	574,023
Bolting-cloths,			377,194	249, 20
Books, n. e. s.,			320,411	263,728
Camphor, crude, lbs.,	2,635,687	1,887,982	439,268	279,745
Chemicals, drugs, dyes, and medicines, n. e. s.,			6,241,789	5,3 8,823
Chloride of lime or bleaching-powder, lbs.,	70,037,541	65,864,091	941,429	725 219
Cocoa, crude, and leaves and shells of, lbs.,	6,631,881	6,742,506	923,2 6	1,238,232
Cochineal, lbs,	1,130,345	1,415,7 7	746,863	793,543
Coffee, lbs.,	403,539,618	447,691,975	56,777,625	55,588,600
Cotton, raw, lbs.,	4,048,782	3,013,474	67 ,520	544,758
Cutch or catechu, and terra-japonica or gambier, lbs.	49,705,377	29,174,089	2,036,725	1,145 862
Dye-woods, in sticks, cwts.,	1,713,709	1,878,420	1,713,922	1,840,974
Eggs, doz.,	8,553,049	7,177,958	1,034,288	839,746
Fish, not of American fisheries:				
Fresh, of all kinds, lbs.,	7,541,124	9,850 224	339,407	332,138
Herring, pickled, bbls.,	55,661	48,144	2 2 070	154,762
Mackerel, pickled, bbls.,	117,747	97,179	6 4,780	459,461
All other, n. e. s.,			984 360	835,951
Fur skins, undressed,			2,546,728	2,131,496
Guano, (except from bonded islands,) tons,	17,546	9,286	245,779	2 5,635
Gums, lbs.,	17,562,242	14,939,377	2,811,560	1,943,508
Gypsum or plaster of paris, unground, tons,	135,257	106,810	132,142	105,091
Hair, unmanufactured:				
Horse-hair, used for weaving, lbs.,	1,671,231	1,213,191	408,138	270,451
Hair of all kinds, n. e. s., lbs.,	2,800,516	2,398,653	514,577	4 3,355
Hides and skins, other than furs,			31,163 864	19,982,400
Household and personal effects and wearing apparel, old and in use, of persons arriving from foreign countries,			2,440,721	1,570,389
India rubber and gutta percha, crude, lbs.,	18,163,798	16,888,678	10,168,781	8,199,833
Indigo, lbs.,	2 265,471	1,816,5 6	2,451,056	1,689,881
Madder, not including the extract of, lbs.,	1,651,445	3,875,888	91,543	181,281
Oils:				
Whale or fish, not of American fisheries, galls.,	657,210	344,326	339,878	147,061
Vegetable, fixed or expressed, galls.,	1,837,684	1,547,140	763,341	707,069
Volatile or essential, lbs.,	496 778	485,337	619,369	486,266
Paintings, statuary, and other works of art, of American artists,			289,724	2 9,612
Paper materials:				
Rags, of cotton or linen, lbs.,	250,713,791	109,630,859	6,069,184	2,867,426
Other materials, n. e. s., lbs.,	63,000,469	42,300,824	1,696,045	1,029,420
Seeds,			376,229	485,121
Silk, raw, lbs.,	2,598,192	2,301,857	11,458,866	11,699 499
Soda, nitrate of, lbs.,	75,971,997	60,888,272	2,077,273	1,268,886

IMPORTS OF MERCHANDISE—*Continued.*

ARTICLES.	QUANTITIES. TWELVE MONTHS, ENDED DECEMBER 31.		VALUES. TWELVE MONTHS, ENDED DECEMBER 31.	
	1880.	1879.	1880.	1879.
			Dollars.	*Dollars.*
Sulphur or brimstone, crude, tons,	92,180	61,794	2,249,929	1,334,406
Tea, lbs.,	68,108,099	74,723,401	18,919,705	19,865,592
Tin in bars, blocks, or pigs, cwts.,	266,921	203,714	6,120,316	3,605,614
Wood, unmanufactured,			3,229,333	2,285,815
Articles admitted free under reciprocity treaty with Hawaiian islands,			4,731,485	3,423,339
All other free articles,			10,047,080	9,189,176
Total free of duty,			206,583,345	174,643,157
DUTIABLE:				
Animals, living,			3,719,583	3,056,256
Beer, ale, porter, and other malt liquors, galls.,	1,118,073	910,021	750,203	642,087
Books, pamphlets, engravings, and other publications, n. e. s.,			2,415,619	1,891,873
Brass, and manufactures of,			409,905	292,310
Breadstuffs, and other farinaceous food:				
Barley, bush.,	8,546,950	6,861,133	5,642,762	4,444,976
Barley malt, bush.,	998,580	646,350	853,310	550,000
Bread and biscuit, lbs.,	152,223	87,977	25,354	13,409
Indian corn or maize, bush.,	56,515	57,643	66,303	55,353
Oats, bush.,	416,724	109,102	132,559	32,722
Rice, lbs.,	58,465,712	58,465,712	1,445,046	1,547,523
Rye, bush.,	502,109	634,457	422,454	394,307
Wheat, bush.,	188,336	1,074,052	199,293	1,071,363
Wheat flour, bbls.,	2,869	14,921	15,510	72,739
Meal, or flour made from oats, Indian corn, rye, and buckwheat,			60,022	51,294
Peas, beans, and other seeds of leguminous plants, bush.,	375,160	316,664	307,326	274,948
All other farinaceous food and preparations of, including arrowroot, pearl, or hulled barley, etc.,			375,665	295,668
Bristles, lbs.,	987,785	596,646	1,009,958	660,887
Buttons of all kinds, including button materials, partly fitted for buttons, exclusively,			3,786,634	3,215,252
Chemicals, drugs, dyes, and medicines, n. e. s.,			6,136,105	5,264,904
Chickory, ground or prepared, and root, lbs.,	4,149,025	3,482,454	155,347	122,837
Clothing, (except of silk, and except hosiery, &c., of cotton or wool:)				
Cut and sewed together,			898,086	177,200
Articles of wear, n. e. s.,			983,328	893,246
Coal, bituminous, tons,	577,458	449,167	1,714,186	1,586,590
Cocoa, manufactured, not including chocolate lbs.	115,752	68,921	34,309	19,496
Copper, and manufactures of:				
Ore, cwt.,	61,771	25,586	212,286	61,756
Pigs, bars, ingots, old, and other manufactured, lbs.,	4,540,671	1,123,428	705,085	163,228
Manufactures of,			4 6,776	331,217
Cordage, rope, and twine of all kinds, lbs.,	837,057	690,890	95,768	80,030
Cotton, manufactures of:				
Bleached and unbleached, sq. yds.,	10,011,319	7,134,352	1,098,999	839,798
Printed, painted, or colored, sq. yds.,	7,655,172	7,169,684	1,023,389	916,896
Hosiery, shirts, and drawers,			8 646,172	5,542,129
Jeans, denims, drillings, etc., sq. yds.,	8,645,807	1,292,420	1,494,493	183,659
Other manufactures of, n. e. s.,			29,407,702	15,434,380
Earthen, stone, and chinaware,			6,595,529	4,636,018
Fancy goods,			7,285,488	4,730,600
Fish, not of American fisheries:				
Herring, pickled, bbls.,	30,092	19,076	295,696	213,950
Mackerel, pickled, bbls.,	38	1	306	10
Sardines and anchovies preserved in oil,			917,576	934,682
All other, n. e s.,			177,654	89,293
Flax, and manufactures of:				
Flax, raw, tons,	6,007	3,192	1,549,796	969,066
Manufactures of, by yard,			16,809,301	14,153,168
Other manufactures of, n. e. s.,			3,924,923	3,248,818
Fruits of all kinds, including nuts,			13,400,734	11,733,018
Furs and dressed furskins,			4,185,392	3,054,699
Glass and glassware:				
Cylinder, crown, or common window, lbs.,	56,223,661	24,230,888	1,950,934	653,320
Cylinder and crown polished, sq. ft.,	135,124	65,358	51,819	16,930
Fluted, rolled, or rough plate, sq. ft.,	494,282	394,859	26,633	16,644
Cast polished plate, not silvered, sq. ft.,	2,350,118	1,761,983	970,382	733,203
Cast polished plate, silvered, sq. ft.,	3,234,626	2,351,910	1,008,409	661,236
Other manufactures of,			2,436,232	1,659,939

IMPORTS OF MERCHANDISE—*Continued.*

ARTICLES.	QUANTITIES. TWELVE MONTHS ENDED DECEMBER 31. 1880.	QUANTITIES. TWELVE MONTHS ENDED DECEMBER 31. 1879.	VALUE. TWELVE MONTHS ENDED DECEMBER 31. 1880.	VALUE. TWELVE MONTHS ENDED DECEMBER 31. 1879.
Hair, (excepting that of the alpaca, goat, and other like animals,) and manufactures of:			*Dollars.*	*Dollars.*
Hair, human, and manufactures of,			299,070	239,014
Hair, other, and manufactures of, n. e. s.,			615,992	330,8 9
Hemp, and manufactures of:				
Raw, tons,	27,3 6	25.359	3,554,180	2,653,730
Manufactures of, by yard, square yards,	374,239	64,278	91,474	23,110
Other manufactures of, n. e. s.,			170,897	110,694
India rubber and gutta percha, manufactures of,			258,215	232,663
Iron and steel, and manufactures of:				
Pig-iron, lbs.,	1,563,936,298	683,343,834	15,004,990	5,219,224
Castings, lbs.,	248,678	121,222	6,806	3,779
Bar-iron, lbs.,	253,972,918	97,680,866	5,721,825	1,780,736
Boiler-iron, lbs.,	538, 79	182,498	7 8 7	4.867
Band, hoop, and scroll-iron, lbs.,	59,634,725	2,062,789	1,631,708	48,068
Railroad bars or rails, of iron, lbs.,	283,285,870	38, 80,2 2	4,076,517	420,849
Sheet-iron, lbs.,	22,823,767	10,918,020	943,769	514,430
Old and scrap iron, tons,	6 9,938	22 ,812	14,704,879	3,700,200
Hardware,			116,253	145,356
Anchors, cables, and chains of all kinds, lbs.,	2,785,803	1,783,210	149,808	82,941
Machinery,			1,601,523	715,314
Fire-arms,			1,083,305	625,515
Steel ingots, bars, sheets, and wire,			5,583,363	1,931,952
Railroad bars or rails, of steel, lbs.,	336,388,258	55,113,588	5,088,351	587,898
Cutlery,			1,895,5 8	1,360,630
Files,			159,956	165,581
Saws and tools,			5,382	5,9 9
Other manufactures of iron and steel, n. e. s.,			6,774,103	2,840,621
Jewelry and all manufactures of gold and silver, n. e. s.,			393,301	255,196
Jute, and other grasses, and manufactures of:				
Raw, tons,	68,693	75,230	4,472,993	4,015,238
Manufactures of, by yard, square yard,	36,909	2,236	14,882	360
Gunny cloth, gunny bags, and manufactures of, used for bagging.	2,293,445	2,295,882	116,125	103,586
Other manufactures of, n. e. s.,			4,129,853	1,599,118
Lead, and manufactures of:				
Pigs, bars, and old, lbs.,	6,458,728	3,657,695	252,682	120,052
Manufactures of,			18,059	875
Leather, and manufactures of:				
Leather of all kinds,	10,866,584	9,456,944	6,636,999	5,376,883
Gloves of kid, and all other of skin or leather, dozen pairs,	710,398	638,653	3,978,743	3,408,029
Other manufactures of,			939,340	742,463
Marble and stone, and manufactures of, n. e. s.,			965,244	755,761
Metals, metal compositions and manufactures of, n. e. s.,			1,463,667	976,444
Musical instruments,			1,227,586	702,7 9
Oils: Coals and other mineral oils, galls.,	17,524	330,651	2,877	20,458
Whale and fish, not American fisheries, galls.,	122,799	169,705	79,278	46,755
Olive, salad, galls.,	254,049	231,886	422,214	394,598
Olive, not salad, galls.,	92,107	176,371	64,515	115,066
All other vegetables, fixed, n, e. s., galls.,	671,896	400,350	325,790	216,070
Volatile or essential, n. e. s., lbs.,	167,278	201,029	29 ,654	238,970
Opium, and extract of, lbs.,	442,671	480,396	2,572,714	2,246,531
Paintings, chromo-lithographs, photographs, and statuary, n. e. s.,			2,410,116	1,508,237
Paints: White lead, lbs.,	1,536,265	1,398,453	88,144	78,342
Red lead and litharge, lbs.,	199,783	191,324	9,731	8,745
Whiting and Paris white, lbs.,	1,743,634	1,260,685	6,852	5,619
Other paints and painters' colors,			1,016,374	783,600
Paper and manufactures of:				
Printing paper, lbs.,	1,713,266	19,2 8	114,909	1,638
Writing paper,			27,804	30,3 9
Paper hangings and other paper,			157,451	101,954
Papier-mache, and other manufactures of paper, n. e. s., including parchment,			1,712,9 9	1,136,472
Perfumery and cosmetics,			453,463	322,955
Potatoes, bush.,	739,166	1,345,392	277,089	715,236
Precious stones,			8,073,898	4,727,198
Provisions, (meats, poultry, lard, butter, cheese, &c.,) not including vegetables,			1,393,390	902,075
Salt, lbs.,	1,018,924,621	952,058,226	1,951,996	1,877,468
Saltpeter (nitrate of potash,) lbs.,	12,762,345	10,953,665	498,959	449,056

IMPORTS OF MERCHANDISE—*Continued.*

ARTICLES.	QUANTITIES. TWELVE MONTHS, ENDED DECEMBER 31.		VALUES. TWELVE MONTHS, ENDED DECEMBER 31.	
	1880.	1879.	1880.	1879.
			Dollars.	*Dollars.*
Seeds:				
Flaxseed or linseed, bush.,	1,478,020	1,395,223	2,201,501	2,240,395
All other, n. e. s.,			424,294	381,603
Silk, manufactures of:				
Dress and piece goods,			23,738,318	17,687,548
Hosiery,			4-2,016	193,906
Other manufactures of,			11,343,893	8,931,556
Soda, and salts of:				
Bicarbonate, lbs.,	7,716,289	2,557,350	133,204	62,849
Carbonate, including sal-soda and soda ash, lbs	317,066,198	288,953,289	4,704,438	3,725,256
Caustic soda, lbs.,	45,2.6,592	44,795,823	1,·96,838	1,672,888
Acetate, sulphate, phosphate, and all other salts of soda, n. e. s., lbs.,	728,629	2,859,477	13,106	31,790
Spices of all kinds; also ginger, ground pepper, and mustard, lbs.,	18,081,805	20,196,370	2,241,668	2,303,276
Straw and palm leaf, manufactures of,			4,418,288	3,0:2,561
Sugar and molasses:				
Brown sugar, lbs.,	1,766,114,156	1,605,894,631	79,151,372	60,749,530
Refined sugar, lbs.,	23,675	168,058	1,810	11,185
Molasses, galls.,	34,042,345	36,881,066	8,3 9,160	6,452,8C2
Melada and syrup of sugar cane, lbs.,	28,610,992	47,677,255	1,024,643	1,223,863
Candy and confectionery, lbs.,	54,924	43,715	9,699	7,579
Sulphur, refined, cwts.,	3,413	3,027	6,004	6,166
Tin, manufactures of:				
In plates, cwt.,	3,160,976	3,085,014	16,518,113	13,227,659
Other manufactures of,			69,3:2	58,709
Tobacco, and manufactures of:				
Leaf, lbs.,	9,618,021	7,318,670	5,043,855	3,614,501
Cigars, lbs.,	630,172	604,385	2,3:3,021	2,270,225
Other manufactures of,			86,372	80,202
Watches, watch-movements, and materials,			2,015,955	1,093,714
Wines, spirits, and cordials:				
Spirits and cordials in casks, proof galls.,	1,307,415	1,225,775	1,573,411	1,339,513
Spirits and cordials in bottles, doz.,	124,623	104,393	615,514	496,375
Wine, in casks, galls.,	4,031,445	4,254,248	2,470,823	2,213,139
Wines in bottles, doz.,	429,209	345,066	3,465,668	2,667,179
Wood, manufactures of:				
Cabinet-ware, house furniture, and all manufactures of wood, n. e. s.,			1,325,397	1,010,162
Boards, deals, plank, joists, and scantling, M. feet,	604,488	410,379	6,251,335	3,839,535
Shingles, M.,	77,040	47,424	185,485	90,303
Timber, sawed or hewn, wholly or in part,			14,435	3,043
Other lumber,			457,950	208,867
Wool sheep's, and alpaca, goat, and other like animals, manufactures of:				
Unmanufactured, lbs.,	112,760,417	70,247,972	20,945,962	10,788,216
Cloths and cassimeres,			13,194,563	7,405,773
Woolen rags, shoddy, mungo, waste, and flocks, lbs.,	1,301,102	238,962	291,506	58,509
Shawls,			1,472,649	1,161,762
Blankets,			6,498	120,248
Carpets, sq. yds.,	1,811,278	452,457	1,585,267	485,808
Dress goods, sq. yds.,	61,232,101	58,223,765	14,607,424	13,902,324
Hosiery, shirts, and drawers,			971,946	556,044
Other manufactures of, n. e. s.,			4,162,277	3,590,510
Zinc, spelter, or tutenegue, and manufactures of:				
In blocks or pigs, lbs.,	6,160,653	4,272,107	294,193	180,365
In sheets, lbs.,	4,290,609	2,621,601	221,914	124,177
All other dutiable articles,			8,105,447	4,884,051
Total value of dutiable merchandise,			490,222,522	338,859,639
Total value of merchandise free of duty,			206,583 345	174,643,157
Total value of imports of merchandise,			696,805.867	513,602,796
Entered for consumption,			516,215,971	394,874,124
Entered for warehouse,			165,178,590	109,566,308
Entered for immediate transportation to interior ports, without appraisements,			15,411,306	9,162,364

IMPORTS OF IRON ORE.

Quantities and values of Iron Ore imported into the United States by Countries during the years ended June 30, 1879 and 1880, and the six months ended December 31, 1880:

COUNTRIES.	Year ending June 30, 1879.		Year ending June 30, 1880.		Six months ended December 31, 1880.	
		Dollars	*Tons.*	*Dollars*	*Tons.*	*Dollars*
Brazil,	. . . .	. . . .	. . .	. . . . .	222	505
Denmark,	. .	. .	. . .	. .	2,020	3,894
France,	890	1,940	10,277	26,865	5,145	11,485
French West Indies,	200	461	. . .	. . . . .	. . .	. . . . .
French possessions in Africa and adjacent islands,	31,727	88,159	113,222	336,758	48,535	152,390
Germany,	. . . .	. .	. . .	. .	5,197	12,406
England,	18,828	54,789	79,319	285,313	22,881	108,556
Scotland,	353	757	6	21	280	1,117
Ireland,	5,867	12,958	12,164	29,073	5,456	16,061
Gibraltar,	. . . .	. . .	. . . . .	. . . .	1,650	4,732
Quebec, Ontario, Manitoba, and the Northwest Territory,	3,904	8,943	29,297	79,386	25,554	75,393
British Columbia,	. . .	. . . . .	. . .	. . . .	400	412
British possessions, all other,	. .	. . .	922	2,925	. .	. .
Italy,	9,008	20,786	33,755	88,923	22,009	58,214
Portugal,	. . .	.	8,234	22,621	1,321	2,951
Spain,	80,044	154,211	134,807	314,074	97,606	213,446
Spanish possessions in Africa and adjacent islands,	. . . . .	. . . . .	. . .	. . . .	2,500	7,616
Turkey in Africa,	. . . .	. . . . .	1,800	3,917	7,791	18,447
United States of Columbia,	. . . .	. . . .	1,000	2,563	. . . . .	. . . . .
Venezuela,	. . . . .	. . . .	209	517	. . . . .	. . . . .
Total,	150,821	343,034	425,012	1,192,961	248,567	687,625

EXPORTS OF DOMESTIC MERCHANDISE.

[Abbreviation: n. e. s., not elsewhere specified.]

ARTICLES.	QUANTITIES. TWELVE MONTHS, ENDED DECEMBER 31.		VALUES. TWELVE MONTHS, ENDED DECEMBER 31.	
	1880.	1879.	1880.	1879.
			Dollars.	*Dollars.*
Acids, lbs.,	1,712,847	3,133,197	47,793	88,410
Agricultural implements:				
Fanning-mills, No.,	25	3	787	541
Horse-powers, No.,	8	38	1,005	16,516
Mowers and reapers, No.,	6,862	9,118	811,965	876,510
Plows and cultivators, No.,	22,633	20,876	189,908	155,882
All others, n. e. s.,	.....	.....	1,460,215	1,473,195
Animals, living:				
Hogs, No.,	86,026	86,624	524,437	647,787
Horned cattle, No.,	215,772	138,053	16 877,382	8,374,958
Horses, No.,	2,285	3,898	443,685	777,792
Mules, No.,	3,873	5,758	434,100	659,346
Sheep, No.,	191,334	192,823	835,182	997,101
All other, and fowls,	.....	.....	23,314	21,862
Ashes, pot, and pearl, lbs.,	1,840,009	1,046,685	183,942	65,407
Bark for tanning,	.....	....	162,501	168,688
Beer, ale, and porter:				
In bottles, doz.,	159,6 3	123,995	279,398	222,011
In casks, galls ,	122,164	94,819	41,319	31,609
Bells, and bell and bronze metal,	.....	.....	22,392	15,249
Billiard tables and apparatus,	.....	.....	19,492	32,347
Blacking,	.....	....	169,370	149,704
Bones and bone dust, cwts.,	22,041	41,611	45,413	55,887
Bone-black, ivory-black, and lamp-black, lbs.,	1,8.5,440	744,763	65,163	49,122
Books, pamphlets, maps, and other publications,	.....	.....	669,226	647,056
Brass, and manufactures of,	.....	.....	226,023	107,197
Bread and breadstuffs:				
Barley, bush.,	1,249,285	1,109,728	8 2,492	684,191
Bread and biscuit, lbs.,	15,856,325	14,050,973	741,005	613,636
Indian corn, bush.,	115,279,399	88,409,299	62,108,957	43,091,678
Indian corn meal, bbls.,	386,712	353,800	1,134,215	920,527
Oats, bush.,	591,760	1,139 654	263,861	389,886
Rye, bush.,	2,352,315	4,438,440	2,165,985	3,682,639
Rye flour, bbls.,	4,976	4,786	26,595	18,539
Wheat, bush.,	144,493,007	147,250,097	171,420,195	170,220,434
Wheat flour, bbls ,	7,128,184	6,124,636	39,613,847	33,828,055
Other small grain and pulse,	.....	.....	1,153,029	925,097
Maizena, farina, and all preparations of breadstuffs, used as food,	.....	.....	2,172,049	2,309,654
Brick, other than fire, M.,	3,684	5,667	32,257	4 ,158
Brooms and brushes of all kinds,	..	.....	132,207	111,630
Candles, tallow, and other, lbs.,	1,727,028	1,893,700	205,891	232,440
Carriages, carts, and parts of,	....	....	890,611	892,250
Cars, railroad, passenger, and freight, No.,	979	1,058	486,622	534,153
Clocks, and parts of,	.....	.....	1,368,500	1,181,207
Coffee, cocoa, and spices, including ginger, pepper, and mustard,	.....	.....	83,8 9	86,552
Coal:				
Anthracite, tons,	411,706	421,594	1,782,156	1,303,639
Bituminous, tons,	198,413	221,669	782,153	673,168
Combs,	.....	.....	16,5.5	14,100
Copper, and manufactures of:				
Ore, cwts.,	18 647	13,437	67,054	47,839
Pigs, bars, sheets, and old, lbs.,	326,152	13,402,332	63,161	2,043,529
All other manufactures of,	..	..	59,871	123,942
Cordage, rope, and twine of all kinds, n. e. s., lbs ,	3,096,666	3,876,276	354,9.6	377,504
Cotton, and manufactures of:				
Sea island, lbs.,	5,416,266	4,437,076	1.649,3 7	1,393,234
Other, unmanufactured, lbs.,	2,016,412,012	1,781,701,612	237,662,005	185,126,182
Colored, yds.,	45,810,664	46,975,556	3,567,743	3,339,866
Uncolored, yds.,	69,459,207	84,651,666	6.103,267	6,363,274
All other manufactures of, n. e. s.,	.....	.....	1,615,384	1,263,528
Drugs, chemicals, and medicines, n. e. s.,	.....	.....	2,951,344	2,553,478
Dye stuffs,	.....	.....	596,498	693,2 4
Earthen, stone, and chinaware,	.....	.....	93,449	86,527
Fancy articles, n. e. s.,	.....	.....	544,841	516,411
Fruits:				
Apples, dried, lbs.,	11,730,377	7,035,983	648.3 9	391,573
Apples, green or ripe, bush.,	2,604,053	1,110,946	1,991,170	1,080,624
Other fruit, green, ripe, or dried,	.....	.....	286,345	274.7 3
Preserved, in cans or otherwise,	.....	.....	450,2.7	436,497
Furs and fur skins,	.....	.....	5,542,735	6,086,829
Gas fixtures and chandeliers,	.....	.....	35,524	30,345

EXPORTS OF DOMESTIC MERCHANDISE—*Continued.*

ARTICLES.	QUANTITIES. TWELVE MONTHS ENDED DECEMBER 31.		VALUES. TWELVE MONTHS ENDED DECEMBER 31.	
	1880.	1879.	1880.	1879.
			Dollars.	*Dollars.*
Ginseng, lbs.,	330,822	420,011	489,361	531,637
Glass and glassware,			776,765	707,460
Glue, lbs.,	197,458	329,395	28,838	41,784
Hair:				
Unmanufactured,			218,518	258,172
Manufactures of,			15,521	24,308
Hats, caps, and bonnets:				
Of wool, fur, and silk,			204,251	222,726
Of palm-leaf, straw, &c.,			16,698	52,977
Hay, tons,	14,948	9,354	248,038	139,317
Hemp and manufactures of:				
Hemp, unmanufactured, cwts.,	268	2,215	1,086	13,127
Cables and cordage, cwts.,	13,173	17,569	156,665	180,668
All other manufactures of,			1,120,093	1,120,967
Hides and skins, other than fur,			875,288	798,596
Hops, lbs.,	5,515,116	11,875,512	1,303,958	2,770,648
Ice, tons,	44,159	56,153	136,233	177,876
India-rubber and gutta percha manufactures:				
Boots and shoes, pairs,	24,454	13,079	40,602	22,599
All other manufactures,			309,695	248,215
Iron and steel:				
Iron, and manufactures of—				
Pig, lbs.,	4,191,738	2,563,451	70,476	33,435
Bar, lbs.,	776,067	897,458	21,426	28,087
Boiler-plate, lbs.,	286,014	940,445	11,535	30,744
Railroad bars or rails, lbs.,	2,011,647	4,110,287	40,671	76,957
Sheet, band, and hoop, lbs.,	275,681	297,735	15,882	12,631
Castings, n. e. s.,			211,682	167,875
Car-wheels, No.,	8,673	10,967	96,901	77,556
Stoves, and parts of,			120,781	82,792
Steam-engines, locomotive, No.,	71	91	634,936	730,830
Steam-engines, stationary, No.,	100	105	147,181	99,295
Boilers for steam-engines, when separate from the engines,			84,707	109,779
Machinery, n. e. s.,			3,685,205	3,354,635
Nails and spikes, lbs.,	7,868,322	8,084,318	318,283	246,194
All other manufactures of iron,			4,654,419	3,713,430
Steel, and manufactures of—				
Ingots, bars, sheets, and wire, lbs.,	308,455	82,551	35,568	8,510
Cutlery,			73,563	74,823
Edge tools,			967,978	868,716
Files and saws,			31,887	29,624
Fire-arms,			1,370,149	2,368,051
Railroad bars or rails, lbs.,	134,667	2,757,229	6,541	59,455
All other other manufactures of steel, n. e. s.,			351,214	299,629
Jewelry, and other manufactures of gold and silver,			258,521	259,111
Junk (old) and oakum, cwts.,	3,950	4,177	32,180	30,191
Lamps,			276,800	295,983
Lead, and manufactures of,			45,291	71,501
Leather and manufactures of:				
Leather—				
Morrocco, and other fine,			789,337	664,889
Sole, upper, and all other, lbs.,	27,088,085	23,917,788	6,298,341	5,096,685
Manufactures of—				
Boots and shoes, pairs,	345,316	364,333	419,875	417,758
Saddlery and harness,			131,999	125,768
All other manufactures of, n. e. s.,			403,240	428,404
Lime and cement, bbls.,	48,399	48,828	67,951	61,152
Manures:				
Guano, tons,	607	345	17,584	7,841
Other substances used for manure,			517,617	944,252
Marble and stone:				
Rough,			206,536	192,229
Manufactures of,			462,956	363,442
Matches,			107,002	133,664
Mathematical, philosophical, and optical instruments,			111,948	41,828
Musical instruments:				
Organs, melodions, &c.,			675,276	439,160
Piano-fortes,			289,625	302,861
All other,			19,449	15,339
Naval stores.				
Rosin and turpentine, bbls.,	937,471	986,938	2,235,824	2,030,809

EXPORTS OF DOMESTIC MERCHANDISE—*Continued.*

ARTICLES.	QUANTITIES. TWELVE MONTHS ENDED DECEMBER 31.		VALUES. TWELVE MONTHS ENDED DECEMBER 31.	
	1880.	1879.	1880.	1879.
			Dollars.	*Dollars.*
Tar and pitch, bbls.,	45,831	48 792	100,945	87,819
Oil-cake, lbs.,	471,778,870	412,430,640	6,622,648	5,318,940
Oils:				
Mineral, crude including all natural oils without regard to gravity,) galls.,	36,748,116	28,601,650	2,772,400	2,069,458
Mineral, refined or manufactured—				
Napthas, benzine, gasoline, &c., galls.,	15,115,131	19,524,582	1,344,529	1,367,996
Illuminating, galls.,	283,130,557	368,597,467	29,047,908	32,811,755
Lubricating (heavy paraffine, &e.,) galls.,	5,618,009	3,168,561	1,141,825	713,208
Residuum (tar, pitch, and all other, from which the light bodies have been distilled,) bbls.,	75,658	114,941	198,983	273,050
Animal—				
Lard, galls.,	1,132,844	2,037,030	674,386	1,033.715
Neat's-foot and other animal, galls.,	47,123	76.261	35,924	66,840
Sperm, galls.,	386,357	356.3 6	403 589	328,739
Whale and other fish, galls.,	651,078	1,642,762	240,397	517,960
Vegetable—				
Cotton-seed, galls.,	6,968,113	6,692,879	3,165,479	2,835,617
Linseed, galls.,	63,198	32,647	46.232	24.432
Volatile or essential,			125,176	262,514
Ordnance stores:				
Cannon,			2.400	3,100
Cartridges and fuses,			598,627	457,414
Gunpowder, lbs.,	1,519,751	1,3'5,752	245,428	180,947
Shot and shell, lbs.,	5,556	2,571,677	455	856,342
Ore, argentiferous (or silver bearing,) ewts ,	5,457	12,303	63,485	278,320
Paints, and painters' colors,			241,146	201,952
Paintings and engravings,			192,592	172,347
Paper and stationery,			1,223,791	1,173,020
Perfumery,			285,058	297,588
Plated ware of silver or other metal,			286,654	307,873
Printing presses and type,			266,166	185,545
Provisions:				
Bacon and hams, lbs.,	818,136,440	749,316,601	69,681,792	48.435,057
Beef—Fresh, lbs.,	90,622,993	66,448,174	8,168,265	6,042,207
Salted or cured, lbs.,	56,211,471	40,547,622	2.904.030	2,570,606
Butter, lbs.,	37,422 479	43,280,169	7,389,678	6,471,772
Cheese, lbs.,	137,901,559	137,144,437	15,717,447	11,219.782
Condensed milk,			130,129	121,798
Eggs, doz.,	83,130	102,9 2	13,385	16,093
Fish, dried or smoked, ewts.,	179,190	194,173	733,732	767,930
Fish, fresh,			106,559	119,038
Fish, pickled, bbls.,	51,065	51,735	267,793	277,106
Fish, other cured,			2,503,623	2,186,211
Lard, lbs.,	414,881,896	345,296,532	33,622,057	24,823,297
Meats, preserved,			6,725,393	8,033,115
Mutton, fresh, lbs.,	3,054,171	2,060,950	224,972	170,079
Oysters,			581,111	468,739
Pickels and sauces,			17,488	16,082
Pork, lbs.,	98,983,543	92,071,938	6,992 979	5,360,310
Onions, bush.,	38,989	56,263	44,501	57,140
Potatoes, bush.,	711,420	678,435	510,038	549,047
Other vegetables,			77,146	82,814
Vegetables, prepared or preserved,			122,170	170,757
Quicksilver, lbs.,	2,872,376	4,310,368	1,133,737	1,560,462
Rags: Cotton and linen, lbs.,	831,574	613,783	16,572	10,246
Woolen, lbs.,	30	77,778	3	2,819
Rice, lbs.,	158,255	518,343	11,521	26,025
Salt, bush.,	37,711	20,879	11,125	8,998
Scales and balances,			263,024	194,940
Seeds: Clover, lbs.,	13.844,266	15,299,284	1,2 6,791	1,406,173
Cotton, lbs.,	10,774,869	15,928,958	151.537	144,737
Timothy, garden, and all other,			350,870	1,284 285
Sewing machines, and parts of,			1,896,749	1,546,841
Soap: Perfumed, and all toilet,			44,023	29,160
Other, lbs.,	13,879,907	13,289,058	654,444	643,117
Spermaceti, lbs.,	114,926	227,517	25,372	51,670
Spirits, distilled:				
From grain, galls.,	13,833,229	6,611,657	3,150,820	2,076,380
From molasses, galls.,	9.4,856	1,279,069	397,165	388,555
From other materials galls,,	51,423	30,2 9	67,273	32,818
Spirits of turpentine, galls.,	7,762,298	6,231,297	2,602,562	1,712,086

EXPORTS OF DOMESTIC MERCHANDISE—*Continued.*

ARTICLES.	QUANTITIES. TWELVE MONTHS ENDED DECEMBER 31.		VALUES. TWELVE MONTHS ENDED DECEMBER 31.	
	1880.	1879.	1880.	1879.
			Dollars.	*Dollars.*
Starch, lbs.,	11,662,964	13,161,642	550,841	627,317
Steam and other fire-engines and apparatus,			6,535	11,417
Sugar and molasses:				
Sugar, brown, lbs,	20,982	24,054	1,413	1,555
Sugar, refined, lbs.,	21,727,595	75,970,707	2,017,756	6,422,656
Molasses, galls.,	1,238,479	5,519,907	298,225	840,253
Candy and confectionery,			90,851	44,372
Tallow, lbs.,	115,787,041	101,646,707	8,259,631	6,921,296
Tin, and manufactures of,			187,413	112,572
Tobacco, and manufactures of:				
Leaf, lbs.,	225,738,672	199,046,685	18,078,533	14,229,428
Cigars, M.,	3,694	2,476	78,750	58,852
Snuff, lbs.,	22,805	12,880	10,737	5,407
All other manufactures of,			2,046,082	2,154,521
Trunks and valises,			184,287	162,486
Umbrellas, parasols, and sun-shades,			6,997	7,308
Varnish, galls.,	69,933	43,676	134,799	76,773
Vessels sold to foreigners;				
Steamers, tons,		883		84,250
Sailing vessels, tons,	5,608	6,859	116,900	184,630
Vinegar, galls.,	27,867	19,835	6,725	5,222
Watches, and parts of,			92,247	113,766
Wax, (bees,) lbs.,	164,038	164,742	43,103	40,962
Wearing apparel,			473,293	514,211
Whalebone, lbs.,	216,386	110,758	336,629	232,969
Wine, galls.,	154,677	48,987	125,653	47,213
Wood, and manufactures of:				
Boards, clap-boards, deals, plank, joists, and scantling, M. feet,	279,931	231,967	4,306,429	4,042,444
Laths, palings, pickets, curtain-sticks, broom-handles, and bed-slats, M.,	4,265	4,469	12,368	13,048
Shingles, M.,	60,689	53,424	189,476	163,612
Box shooks,			193,805	127,532
Other shooks, staves, and headings,			3,496,523	3,565,035
Hogsheads and barrels, empty, No.,	151,337	152,128	238,485	257,845
All other lumber,			1,053,370	643,336
Fire-wood, cords,	4,323	3,177	11,462	9,810
Hop, hoop, telegraph, and other poles,			298,936	442,128
Logs, masts, spars, and other whole timber,			671,948	637,179
Timber, sawed and hewed, cubic feet,	18,425,438	13,948,573	2,592,077	1,742,622
All other timber,			123,940	97,337
Household furniture,			1,872,589	1,604,279
Wooden-ware,			312,447	298,410
All other manufactures of wood, n. e. s.,			1,944,274	1,595,076
Wool, and manufactures of:				
Wool, raw and fleece, lbs.,	75,593	240,540	19,767	87,672
Carpets, yards,	14,244	6,079	14,597	6,058
All other manufactures of,			233,003	268,151
Zinc, and manufacture of:				
Ore or oxide, cwts.,	5,519	14,048	19,383	46,560
Plates, sheets, pigs or bars,	1,737,771	1,236,150	154,817	102,787
Articles not enumerated:				
All other unmanufactured articles,			853,191	882,059
All other manufactured articles,			6,798,371	4,805,170
Total value of exports of domestic merchandise,			875,560,802	754,656,755

IMMIGRATION.

STATEMENT *showing the number of Immigrants arrived in each customs district of the United States during each of the ten years ended June 30, from 1871 to 1880, inclusive.*

CUSTOMS DISTRICTS.	1871.	1872.	1873.	1874.	1875.	1876	1877.	1878.	1879.	1880.	Total.
ATLANTIC PORTS, (north of Cape Henry, Va.)											
Baltimore, Md.,	9,976	15,979	17,897	9,831	6,055	5,093	3,923	3,612	4,713	17,394	94,453
Bangor, Me.,			7								7
Boston and Charlestown, Mass.,	27,024	26,909	31,676	21,225	17,645	9,711	7,887	8,756	10,364	34,062	198,259
Bristol and Warren, R. I.,				4							4
Edgartown, Mass.,		1		16			5				22
Fairfield, Conn.,	3	10	7		3		1		1		25
Gloucester, Mass.,	93			8	105	58	118	134	23	322	861
Marblehead, Mass.,	36	6			6	1	6	12	11	8	86
New Bedford, Mass.,	122	186	160	179	364	214	402	184	841	274	2,925
Newburyport, Mass.,	11										11
New Haven, Conn.,	4	13	5	2	5	10	6	1	2	9	57
New London, Conn.,	7	3							1		11
New York, N. Y.,	206,205	283,226	307,334	194,144	130,994	82,373	72,942	72,163	99,224	263,726	1,712,331
Passamaquoddy, Me.,	13,890	9,523	667	1,364	1,229	1,284	1,491	1,118	1,409	2,886	34,861
Petersburg, Va.,				2							2
Philadelphia, Pa.,	348	154	1,108	5,649	9,929	7,812	6,154	5,289	8,266	21,727	66,436
Portland and Falmouth, Me.,	4,219	5,385	4,524	2,477	1,633	1,283	977	27	42	53	20,620
Portsmouth, N. H.,	26	20	8	13	6						73
Providence, R. I.,	15	11	133	7					1	4	171
Salem and Beverly, Mass.,	94	55	38		30						217
Total,	262,053	341,481	363,564	237,921	168,004	107,839	93,912	91,295	124,898	340,465	2,13 ,432
ATLANTIC PORTS, (south of Cape Henry, Va.)											
Beaufort, N. C.,				8							8
Charleston, S. C.,	29	5	52	1	33		11			4	135
Fernandina, Fla.,				7		5					12
Georgetown, S. C.,					2						2
Norfolk and Portsmouth, Va.,	71	664	1,190	507							2,432
Pamlico, N. C.,									1		1
Savannah, Ga.,	5	14	34	3	1	7					64
Wilmington, N. C.,	8										8
Total,	113	683	1,276	526	36	12	11		1	4	2,662

GULF PORTS.											
Galveston, Texas,	732	763	1,133	572	135	60	53	2	18	7	3,475
Key West, Fla.,	684	924	1,144	1,222	1,279	983	963	620	829	996	9,655
New Orleans, La.,	4,181	6,005	6,304	4,915	2,132	1,669	1,891	2,449	1,834	2,664	33,953
Pearl River, Miss.,	. . . .	. . . .	. . . .	1	1	1	. . .	. . .	4	1	8
Pensacola, Fla.,	3	. . .	9	7	. . . .	13	13	9	. . . .	. . . .	54
Saluria, Texas,	. . . .	. . . .	. . . .	. . . .	. . . .	1	. . . .	. . . .	3	. .	4
Saint Mark's, Fla.,	. . . .	. . . .	. . . .	. . . .	2	14	29	6	18	20	89
Teche, La.,	. . . .	1	. . . .	. . .	. .	. . . .	. . . .	. . . .	. . . .	. . . .	1
Total,	5,600	7,693	8,560	6,767	3,549	2,741	2,859	3,086	2,697	3,687	47,239
LAKE PORTS.											
Buffalo Creek, N. Y.,	588	232	190	172	227	135	200	303	315	1,017	3,379
Champlain, N. Y.,	1,583	2,075	1,276	959	458	191	. . .	. . .	. . . .	. .	6,542
Chicago, Ill.,	95	1	46	104	64	33	25	32	59	388	847
Cuyahoga, O.,	161	88	224	285	86	70	77	168	238	54	1,451
Detroit, Mich.,	3,485	1,365	1,826	1,160	857	1,198	1,191	849	1,913	4,921	18,765
Duluth, Minn.,	. . . .	. . . .	77	69	93	377	202	424	476	867	2,585
Erie, Pa.,	4	. . .	. . .	. . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	4
Genesee, N. Y.,	799	133	74	84	72	37	4	. . . .	. . .	. . .	1,194
Huron, Mich.,	36,277	38,988	58,917	48,281	34,580	31,334	30,185	30,610	33,421	94,375	437,068
Miami, O.,	44	5	30	. . . .	. . . .	. . . .	. . . .	. . .	. . .	. .	79
Michigan, Mich.,	. . .	. . . .	. . . .	. . .	. . .	. . . .	. . . .	1	. . . .	221	222
Milwaukee, Wis.,	139	29	17	31	31	9	16	21	. .	27	320
Minnesota, Minn.,	. . .	. . . .	72	593	245	117	488	623	1,499	1,725	5,362
Oswego, N. Y.,	143	10	18	12	8	10	. . .	. . .	81	98	380
Superior, Mich.,	736	571	842	612	320	487	306	730	766	1,457	6,827
Total,	44,045	43,497	63,609	52,462	37,041	33,998	32,694	33,761	38,768	105,150	485,025
PACIFIC PORTS.											
Alaska, Alaska,	. . . .	20	. .	. . . .	. . .	. . .	. . .	. . .	. . .	93	113
Oregon, Oregon,	534	1,073	1,877	547	582	915	1,126	1,785	2,209	691	11,339
Puget Sound, Wash.,	. . .	. . . .	.	. .	. .	401	. .	. . . .	. .	. .	401
San Francisco, Cal.,	8,971	10,359	20,917	15,116	18,286	24,080	11,255	8,542	9,253	7,153	133,932
Willamette, Oregon,	34	. . . .	. .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	34
Total,	9,539	11,452	22,794	15,663	18,868	25,396	12,381	10,327*	11,462	7,937	145,819
Grand total,	321,350	404,806	459,803	313,239	227,498	169,986	141,857	138,459	177,826	457,243	2,812,177

WAGES.

Practically speaking, all that the workman receives is what he derives from wages paid, or given to him as compensation for labor performed. This system prevails to a greater extent throughout the world, than any form of religion, or, indeed, of any form of language. It is from wages received that men of all nations, including Americans, Germans, Frenchmen, Turks, Chinese, etc., Protestant, Catholic, or Mahommedan, obtain, in some form, the necessaries and comforts which they require or enjoy. The civilization, the social status of the people, the form of government, and the leading principles of morality and religion, that predominate in any country, are indicative of the power given to labor to purchase the essential necessaries of life. The meager pittance of the Chinaman is an index of his idol worship, and the exclusive policy of his government. The better pay of the American, of freedom, Christianity, and the greater equality vouchsafed to him by a republican or coöperative form of government. The wage system dates back to a very remote period, to a time when the division of labor first began, when it assumed the form of barter; and as labor became more sub-divided, the strong became the employing and the weak the employed classes. The employer thus was invested with the powers of accumulation, and became the ruling or governing class, which they steadily maintained, not simply by the power of wealth, but by the force of superior intelligence, gathered through the means of wealth and leisure; and such facilities as the legislation of their time would accord them. Thus were communities established into two classes—the wage-paying and wage-receiving classes. Ownership of land followed, through the accumulation of profits derived from labor, and with it the gradual reduction of the latter into some, or various forms of serfdom. This, in time, bred grievous dissensions, and led to wars of nationalities and tribes, the strong continuing to oppress the weak to such an extent that in "ancient Attica four millions out of five were slaves." To this condition can be first attributed the aggregating of the working people as tillage laborers; thus brought together, thoughts as to their condition would be exchanged, and plans for possible amelioration be considered, culminating into a combination of some sort. But as abuses heaped upon them seemed to increase rather than diminish, their sufferings attracted the attention of the higher class, whose better natures seemed to prompt some methods of relief. Thus agitation began, and as it increased, the condition of men became improved, and with improvement came light, and combinations in various forms down through the generations of the past; until in latter days it has reached its latest phase in the organization of trades unions.

Thus from slavery did men emerge into wage-workers, by coming out from a condition of servitude and assuming the attitude of hired men. But government assumed the position of master, as they did, by regulating wages by law, upon the theory that labor had no right to any voice in the subject of compensation, nor of the manner or style of living or clothing. This was assumed upon the presumption that the masters were the government, which they virtually were, hence they enacted and regulated law, as they previously had fixed and regulated their own edicts, thus setting aside every other method, which would naturally or otherwise regulate wages. There was no reference, nor consideration given to the regulation of wages, by the law of supply and demand, for history furnishes the fact that when pestilential diseases swept over England, in the fourteenth century, with fearful fatality, greatly reducing the number of laborers, statutes were enacted, limiting the rate of wages to be paid, and preventing their migration from one district to another, under pain of imprisonment. Happily this era has been silently buried in the dead past, so that the ignorance, that still abounds to some extent among the laboring classes; nor any legislation that might be attempted to impede the advancement in human progress; can, with any degree of success, keep wages at a very low ebb. Throughout the world, where dwells a people imbued with the righteousness of the civilization of modern days, and where the comforts of life are sought for, and in common appreciated, there has been a steady, though comparatively slow increase in the wages of labor. True, there have been periods, some of them of long duration, during which trade has been in a state of convulsion, with production dwarfed, and labor reduced to almost, if not actual want; again, times and periods come and go, in which labor has met with profitable encouragement from steady employment, and improved wages; resulting in accumulated comforts. If, however, we carefully scrutinize the past, and earnestly contemplate the present, we are forced to the conclusion, that in all that pertains to man's advancement, in all the progress of the arts and sciences, of education and invention, the greater the progressive rapidity, the higher the privileges, and the more accumulative have been the comforts and condition of the people. Man's life, in a primitive state, was spent in hunting, fishing, and other occupations of a nomadic character, to procure food sufficient for immediate and present wants, but in due course of time he became a tiller of the soil, and from dwelling in caves or roughly constructed huts, more substantial dwellings were required, and as numbers increased and wants diversified a distribution of labor was the result; and this diversity of labor, in its varied forms, had to be exchanged for the products of the labor of each other. This exchange or barter was the primitive reward or wages of labor, under which system great inconvenience, and doubtless much fraud was practiced, nevertheless, it added to the comforts of those who were the principals in the barter. However as wants multiplied, and the articles of trade increased, convenience demanded a substitute to represent the value of things exchanged,

and in due course of time a circulating medium was introduced. "Among the North American Indians, the circulating medium was wampum and beaver skins; among the natives of west Africa it consists of small shells. Our Anglo-Saxon ancestors used slaves and cattle as the mediums of exchange, and going back to remote periods we find in the time of Homer, that while the price of the armor of Diomede was nine oxen, that of Glaucus cost him one hundred head of cattle. In the early history of the American colonies cod-fish and tobacco were not unfrequently used as a circulating medium." Among all civilized or commercial nations, however, pieces of coined or stamped metal, which we designate as money, took the place of the various articles used as circulating mediums. This man received in exchange for his labor, as wages, and again parted with in exchange for the actual necessaries of life. The capitalist pays wages for the cultivation, manufacture, or transportation of the articles in which he trades, and expects to sell the result of the labor of those whom he employs and pays, at a price sufficient to pay for the raw material that may be used, wear and tear of machinery, the cost of labor, and other incidental expenses, and what remains is considered as the investor's profit. The distribution of wealth among men emanates from a source, the cause of which governs the wages paid to the toiler. Where the greatest comparative equality exists in the distribution of wealth, there abounds the highest degree of civilization, and there too are the highest wages paid. "That community only can attain the highest prosperity in which industry is free, capital secure, division and classification of labor intelligent, exchange untrammeled, and distribution of wealth equitable." Those who receive low wages will be attracted to districts and countries where civilization has attained a higher degree and where Christianity in all its beneficent forms abounds to a greater extent, for it indicates truly that their wages are higher, and wealth is more bountifully distributed to the masses for the purchasing power of wages is augmented. The payment of low wages in any section does not indicate that there the masses can earn the best living, and as labor will naturally avoid such places as they would a pestilence, capital is compelled to follow, as can be witnessed in many sections of this country. As slavery has vanished, as education has been promoted, so has wages increased, for the greater intelligence, the sooner the people understand and in justice demand and receive what of right belong to them. The congregation of labor into associations, begets intelligence, and that in turn brings with it the power to demand, that justice be accorded. True, association at times assumes an arbitrary exercise of power, and thus bring discredit upon themselves, but that is the abuse and not the use of intelligent association. Many good things at times crop out into excesses, as law, medicine, and even Christianity itself is oftimes used as a cloak to hide great crimes, yet, the true and the good remain faithful through all time. Thus the good of trades associations may at times be defeated through the hasty and inconsiderate action of a trying hour. The propriety of strikes for the advance-

ment of wages, or to resist reduction, are frequently questioned, and doubtless, are oftentimes entered into without the careful and considerate deliberation that so important a movement demands. Yet they are indicative of thought, and as thought is the prime mover of all conduct, the repeated gatherings, the different experiences discussed, the nature and cause of the dispute—if any—ventilated, adds to the intelligence already secured, and prompt remedial measures for the upward and onward progress of the future.

It is contended by many wage-workers, that compensation could reasonably, and without injustice to capital be increased, were it not that they are "at the mercy of that small number of laborers to be found in all countries who are perfectly content with receiving barely pay enough to maintain them, and the low wages they can be induced to accept, govern the price of all the rest." Be that as it may, it must be conceded that in this country education is rapidly dispelling ignorance, and as one generation succeeds another, the questions of life and its comforts demand increased attention. Oppression is dethroned, and equality before the law, in all its great attributes is intensified. Thus mankind in general, is moving gradually onward to a state of fraternal unanimity.

The wage worker "should remember it is the amount of capital, or that portion of wealth which is destined for reproduction, which regulates and provides for the wages of labor; that, however fertile the soil, however favorable the position of the country, however great the extent of territory, unless there be capital in hand to maintain the laborers who have to cultivate it, and to procure the necessary implements for the purpose, nothing can be done; that the more capital there is to divide among a certain number of laborers, the higher will be the wages; that the larger the number of laborers competing for the same, the less will be the sum gained by each; that every increase of such capital must necessarily promote a corresponding increase of wages, unless there be as great an increase of competition among laborers. The laborers are, in fact, deeply interested in the increase of capital. They absolutely depend upon it for their welfare; and the only and best means they can use to increase their own resources is to favor the increase of capital, so that the fund which is destined for their maintenance may keep pace with the increase in the number of laborers, whilst whatever they do which diminishes or retards such increase must necessarily recoil on themselves.

The capitalist must remember that the laborer must live, that he must maintain his family, that he must educate his children, and have a share of relaxation and enjoyment, without which life is a burden. He must not forget that the best way to make a laborer work well is to pay him well; to keep him happy and cheerful, strong and healthy; and that if he will deal justly by his laborers, they will neither neglect their labor nor be disaffected—they will neither complain nor be disposed to strike. If, on the other hand, the employer has a right to endeavor to lower the wages, lest

by enhancing the cost of production too high he becomes unable to compete with the foreign producer, and thus lose the trade altogether, on the other the laborer has a right to expect that the wages shall bear a certain proportion to the profits of the undertaking, be they high or low." As the wage system is the great channel through which the working classes obtain their living and whatever else of comfort they possess, the question that must demand the attention of statesmen and philanthropists is: How can their wages be increased? Meaning by that, How can a workman become possessed of more and better things? How shall he keep to himself, for his own use and culture, more of his own product? Or, how can wages be so increased that profit upon labor shall finally cease, and co-operative industry in production, as well as in distribution, take the place of absolutism and competition. As this is a problem for the future to solve, we will but add as the expression of the past, and the still unerring truth of the present, two extracts, the first from "Dr. Kane's work on the Industrial Resources of Ireland," and the other from "Adam Smith's Wealth of nations."

"A wretched man who can earn by his exertion but four or five shillings a week, on which to support his family and pay the rent of a sort of habitation, must be so ill-fed and depressed in mind that to work as a man should work is beyond his power. Hence there are often seen about employments in this country a number of hands double what would be required to do the same work in the same time with British laborers. * *

* When I say that the men thus employed at low wages do so much less real work, I do not mean that they intentionally idle, or that they reflect that as they receive so little they should give little value; on the contrary, they do their best honestly to earn their wages; but supplied only with the lowest description of food, and perhaps in insufficient quantity, they have not the physical ability for labor, and being without any direct prospect of advancement, they are not excited by that laudable ambition to any display of superior energy. If the same men are placed in circumstances where a field for increased exertion is opened for them, and they are made to understand what at first they are rather incredulous about, that they will receive the full value of any increased labor they perform, they become new beings, the work they execute rises to the highest standard, and they earn as much money as the laborers of any other country. *Wages are no longer low, but labor is not on that account any dearer than it has been before.*"

"The liberal reward of labor," says Adam Smith, "as it encourages the propagation, so it encourages the industry of the common people. *The wages of labor are the encouragement of industry*, which, like every other human quality, improves in proportion to the encouragement it receives. A plentiful subsistence increases the bodily strength of the laborer, and the comfortable hope of bettering his condition and ending his days perhaps in ease and plenty, animates him to exert that strength to the utmost. Where wages are high, accordingly, we shall always find the workmen more active, diligent, and expeditious than where they are low."

PAYMENT OF WAGES.

Next in importance to the rate agreed upon is the manner and time at which payments for labor performed are received. That payments in money, and that too as early as practicable after they are earned, is essential to the welfare of all, is a principle so deeply rooted in the affairs of mankind that its discussion seems superfluous. Nothing can so readily promote the welfare of the wage-worker, after having obtained employment, as to receive his wages as soon as possible after the labor is performed, and to receive it in the current money of the country. The characteristic energy of the American is visible everywhere—when not excluded by a combination of wealth, fortified by exclusive legislative privileges—in the opening of stores, whose shelves are laden with all the necessaries of life, to purchase which the workmen is invited with his hard earned wages. The multiplicity of opportunities and the cash in hand gives him an advantage in the purchase of commodities that otherwise he might not have; and this is in consonance with the genius of our institutions, for it imparts greater ability to the wage-worker in exercising his prerogative as a freeman, by going withersoever he can in order to improve the pecuniary condition of himself and family. The payment of labor, wholly or in part, in *truck* or store goods, as a rule, cripples his opportunity to better himself, as the rates charged for goods are fixed by the employer, from which there is no deviation, and the payment for the same has already been made in earned wages. The great difficulty in an attempt to legislate upon this subject is the interference of the right of contract; but it is questionable whether a contract for labor at a given price, paid in store goods, is, from an equitable stand point at least, binding. In the report of the committee of Parliament, appointed to investigate the *truck* system in 1854, the testimony of Sir Archibald Allisson, in speaking with reference to "periods of great distress, when the masters are driven *to be sharp with their furnishings*," uses the following language: "I have no doubt that under these circumstances, during these periods of distress, they sometimes *furnish inferior articles*, at least to what they have furnished before." * * *
The complaints which I have heard have almost always been *complaints about measure;* or, in some instances, I have heard complaints, in periods of distress, that the quality of the goods was inferior." * *
I think when a master is receiving high prices for his articles, for iron and coal, then his pockets are full of money; he is in affluent circumstances, and he is not, therefore, under the necessity of being strict with his furnishings; that is to say, *when trade is good he gives good measure*, he gives the best articles, and liberal with his workmen; he does not feel the pressure himself. If in bad times he is out at elbow and feels the pressure, as he always does in a monetary crisis, then he is obliged to be more strict with his workmen, and then complaints are made." But England enacted a law forbidding this system, and thus interfering with freedom of contract, and in this interference enhanced substantial freedom of movement among

the laboring classes. The laborer's practical ability to seek his best market is made up of a material element—the means of transportation and present subsistence—and of intellectual and moral elements quite as essential, the knowledge of the comparative advantage of the different occupations and locations offering themselves, and the courage to break away from place and custom to seek his fortune elsewhere. The *truck* system as it exists in Pennsylvania was set forth to considerable extent in our last report, and we do not think that anything additional need be added in the present. That it exists, and that too in some localities in its most flagrant forms is evident, that there is a remedy through law is doubtful. The best and only reasonable course to pursue, is to present it as has been done in all its oppressive forms, convinced that its agitation will in due season provide for a proper remedy. The samples of scrip used where payment is made in store goods, given in our last report, together with the prices attached, has been a subject of considerable comment throughout the State. We could multiply evidence and instances as to the extent and injustice of the system; but we refrain with the belief that enough has already been given to convince the most skeptical as to its existence and oppressiveness. The facts and figures presented in our last report have not been materially questioned, except in a few cases. Thos. Lynch, Esquire, Superintendent of the Valley mines, H. C. Frick & Co., Fayette county, addressed a letter to the Bureau, taking exceptions to our report, and asserting that they had been "falsified," accompanied with a demand that we furnish the name of our correspondent The nature of previous promises given forbid the disclosure of names; but Mr. Lynch was assured that any evidence given that the facts as set forth were not true would be published in the next report of the Bureau. In reponse to which the following was received.

EXTRACT FROM PAY-ROLL.

1880.	JANUARY.		FEBRUARY.		MARCH.		APRIL.	
NAME.	Amount earned.	Store bill.	Amount earned.	Store bill.	Amount earned.	Store bill.	Amount earned.	Store bill.
Thomas Lalley,	$53 35	$12 00	$28 35	$15 00	$31 50	$13 00	Sick.	
John Steiler,	58 50	21 00	34 75	10 00	61 80	22 00	$61 25	$25 00
Thomas Ambrose,	53 55	11 00	26 95	5 00			49 70	9 00
Daniel Rissler,	66 80	13 00	32 70	16 00	87 63	29 00	74 50	17 00
Ed. Meany,	54 07	4 00	20 80	1 00	57 50	2 00	68 25	2 00
K. Eberhart,	70 00	10 00	55 00	11 23	Not at	work.	70 00	5 00
William Ritenour,	128 20	41 00	72 00	27 00	26 00	8 00	Quit.	
William Johnston,	82 65		15 00					
John Koozer,	56 40	2 00	51 10	7 00	103 60	9 00	15 40	4 00
James Woods,	71 35		27 65	10 00				
Jesse Felger,	89 40	7 00	58 35	8 00	89 90	4 00	83 52	6 00
Nath. Shallenberger,	65 80		27 60	5 00			16 70	1 00
Henry Jarrett,	51 75	9 15	40 10	9 00	42 90	14 00	42 90	15 00
James Boyle,					66 45	11 00	57 45	3 00
Jacob Sayler,			23 45	1 50	55 30		58 80	
Jerry King,					58 45		50 75	
Frank Richey,					90 55	6 00	79 80	
John Arnold,					51 30	5 00	49 40	3 00
John Cox,							64 75	1 00
Thomas Malone,							50 10	4 00

In the month of February, we only worked part time, had a strike for two weeks. The above is a fair average of the whole pay-roll during the four months, and we had about thirty men who did not buy one cent's worth in that time at our store.

THOMAS LYNCH,
Superintendent.

Price list of goods sold at "Valley store," (H. C. Frick & Co.,) as compared with other stores.

ARTICLES.	COMPANY STORE.	INDIVIDUAL STORES.		
	H. C. Frick & Co. Valley Store prices.	E. H. Reid, Scottdale prices.	Frisbee, Cooper & Co., Connellsville prices.	W. & J. K. Beeson, Uniontown prices.
Hams, per lb.,	$0 13	$0 12½	$0 12	$0 12½
Sides per lb.,	11	10	10	10
Shoulders per lb.,	9	10	9	9
Flour, per 50 lbs.,	1 75	1 80	$1 70 and 1 90	1 60
Molasses, per gall.,	60	80	70	60
Potatoes, per bush.,	50	60	50	60
Coffee, per lb.,	20c. and 23	23c and 25	20c., 23c. and 24	22
Soaps, per lb.,	4c. and 6	3 for 25	4 for 25	4 for 25
Wayman's cut and dry tobacco, per lb.,	40	40	40	50
Tomatoes, 3lb. cans,	12½	12½	15	15
Cheese, per lb.,	Goshen, 18	Goshen, 15	Goshen, 16	Ohio 2d, 13
Prunes, per lb.,	10	12½	11	10
Rice, per lb.,	10	10	10	10
Lard, per lb.,	12½	12½	11	10
Tea, per lb.,	50c. to 1 00	70	50c. to 1 20	50c. to 1 00
Sugar, per lb.,	11c. to 12½	12½	9c. to 11	10c., 11c. and 12½
Miners' oil, (white,) per gall.,	75	80	90	Don't keep it.

STATE OF PENNSYLVANIA, }
Fayette County, } *ss:*

Before me, the undersigned, a notary public for said county and State, personally appeared Thomas F. Mahon, E. B. Roddy, and O. N. Negley, who being sworn according to law, say the prices given above for "Valley Store," are true and correct.

THOMAS F. MAHON,
E. B. RODDY,
O. N. NEGLEY,
Clerks.

Sworn and subscribed before me, this 15th day of June, 1880.

C. H. SEATON,
Notary Public.

STATE OF PENNSYLVANIA, }
Fayette County, } *ss:*

On the 15th day of June, 1880, before the undersigned, a notary public in and for said county and State, personally appeared Thomas F. Mahon, E. B. Roddy, and O. N. Negley, clerks in H. C. Frick & Co.'s store at Valley mines, who being sworn according to law, say the statements in

the official report of Bureau of Industrial Statistics on the subject of "Payment of Wages," in regard to prices of flour, the use of the store check in places other than the company's store, and the method of compelling men to deal with them, are not true as regards the Valley mines of H. C. Frick & Co.

THOMAS F. MAHON.
[SEAL.] E. B. RODDY.
O. N. NEGLEY.

Sworn and subscribed before me, this 15th day of June, 1880.

C. H. SEATON,
Notary Public.

STATE OF PENNSYLVANIA, } ss:
Fayette County, }

On this 15th day of June, 1880, before the undersigned, a notary public in and for said county and State, personally appeared William Faith, H. D. Jarrett, William Oldland, William Burger, employés of H. C. Frick & Co. at the Valley mines, who being sworn according to law, says the statements published in the official report of the Bureau of Industrial Statistics on the subject of "Payment of Wages," in regard to prices of flour, the use of the store check in places other than the company store, and the method of compelling men to deal with them, are not true as regards the Valley mines of H. C. Frick & Co.

WILLIAM FAITH.
HENRY JARRETT.
[SEAL.] WILLIAM OLDLAND.
WILLIAM BURGER.

Sworn and subscribed before me, this 15th day of June, 1880.

C. H. SEATON,
Notary Public.

STATE OF PENNSYLVANIA, } ss:
Fayette County, }

On this, 15th day of June, 1880, before me, a notary public in and for said county and State, personally appeared Wallace Skiles, who, being sworn according to law, says that he was employed by Messrs. H. C. Frick & Co. as coke drawer at the Valley mines in February, 1880, and that he bought flour from them in that month, but did not then or at any time pay at the rate of $9 60 per barrel.

WALLACE SKILES.

Sworn and subscribed before me this 15th day of June, 1880.

[L. S.] C. H. SEATON,
Notary Public.

STATE OF PENNSYLVANIA, } ss:
Fayette County. }

On this, 15th day of June, 1880, before me, the undersigned, a notary public, in and for said county and State, personally appeared E. B. Roddy,

who, being sworn according to law, says that he was employed by an individual firm as clerk in a grocery store in Uniontown, Fayette county, for the three years prior to this engagement with H. C. Frick & Co. three months ago, and on comparing prices finds the Valley store, where he is now employed, are not any higher on an average than the ruling prices in Uniontown.

E. B. Roddy.

Sworn and subscribed before me this 15th day of June, 1880.

[L. S.] C. H. Seaton,
Notary Public.

It is but just to add that upon the receipt of the foregoing statements our correspondent was notified, and requested, if possible, to substantiate his former statement, and in reply the following was received,

Fayette County, Pa.

"We, the undersigned, citizens of Pennsylvania, residing in the vicinity of the Valley mines, having been shown a copy of the advanced sheets on "payment of wages," hereby certify that the statements made therein are correct, and the said company, H. C. Frick & Co., have not been falsified."

The signatures of thirty persons are attached to the same, all of whom, we presume, are wage-workers, whose names we decline to publish, lest they become subjects of ostracism, a custom by far too prevalent, but fortunately diminishing in this State. The foregoing contradictory evidence is but another powerful argument in favor of extending aid to the Bureau, by which the facts could be impartially obtained through personal visitation, and all parties in interest receive justice without fear, favor, or hope of successful contradiction.

A TABLE *showing the average daily and yearly earnings of employés in the anthracite coal mines, compiled from operators' reports to the Bureau, for the year ended December 31, 1880.*

COUNTY.	Average price per yard for driving gangway.	Average price per yard for driving tunnel.	Average price paid per wagon.	AVERAGE DAILY EARNINGS.							Average number of days worked during year.	AVERAGE EARNINGS FOR THE YEAR.						
				Miners on contract.	Miners on wages.	Loaders.	Inside laborers.	Outside laborers.	Platform and dump chute men.	Slate pickers—boss.		Miners on contract.	Miners on wages.	Loaders.	Inside laborers.	Outside laborers.	Platform and dump chute men.	Slate pickers—boss.
Carbon, ...	$7 16	. . . . .	$0 85	$3 00	$2 02	$1 72	$1 58	$1 16	$1 20	$1 27	175¼	$525 75	$354 00	$301 43	$276 89	$203 20	$210 30	$222 56
Columbia, ...	8 91	. . . . .	1 00	3 05	1 90	1 77	1 70	1 37	1 33	1 54	157¼	479 61	298 77	278 33	267 32	215 43	209 14	242 16
Dauphin, ...	3 00	. . . . .	83	2 66	1 96	1 75	2 00	1 45	1 39	1 60	254⅓	676 51	493 48	445 07	508 66	368 77	353 51	406 92
Lackawanna, ...	2 34	. . . . .	72 *62	2 69	1 76	1 60	1 50	1 29	1 36	1 36	187½	504 17	330 00	300 00	281 25	241 87	255 00	255 00
Luzerne, ...	3 53	$49 75	74	2 72	1 92½	1 46	1 55	1 23	1 26	1 49	185	503 20	356 12	270 10	286 75	227 55	233 10	275 00
Northumberland, . .	6 15	35 00	69	2 30	1 75	1 55	1 42	1 25	1 28	1 43	196¾	452 52	341 31	304 96	279 38	245 93	251 84	281 35
Schuylkill, ...	7 41	35 25	76	2 53	1 86	1 75	1 56	1 27	1 33	1 37	160½	406 06	298 53	280 87	250 33	203 83	213 46	219 88

* Price per ton.

EMPLOYEES' WAGES.—ANTHRACITE COAL MINES—*Continued.*

County.	AVERAGE DAILY EARNINGS.								Average number of days worked during year.	AVERAGE EARNINGS FOR THE YEAR.							
	Slate pickers—boys.	Door and fan boys.	Drivers.	Engineers.	Firemen.	Blacksmiths.	Carpenters.	Other employees.		Slate pickers—boys.	Door and fan boys.	Drivers.	Engineers.	Firemen.	Blacksmiths.	Carpenters.	Other employees.
Carbon,	$0 51	$0 79½	$1 32	$1 80	$1 38	$1 70	$1 62	$2 02	175¼	$89 37	$139 32	$231 33	$315 45	$241 84	$297 92	$283 90	$354 00
Columbia,	65	89½	1 38	1 86	1 36	1 78	1 86	1 63	157¼	101 51	140 73	217 00	293 48	213 86	279 90	292 48	256 31
Dauphin,	51	85	1 38	1 77	1 62	2 00	2 00	1 63	254½	129 70	216 18	370 97	450 15	412 01	508 66	508 66	414 55
Lackawanna,	49	59	94	1 78	1 40	1 88	1 76	1 67	187½	91 87	110 62	176 25	333 75	262 50	352 50	330 00	313 12
Luzerne,	56	69½	1 27	1 85	1 45	1 78	1 78	1 73	185	103 60	128 57	234 95	342 25	268 25	329 30	329 30	320 05
Northumberland,	62	81	1 26	1 74	1 37	1 71	1 70	1 32	196¾	121 98	159 36	247 90	342 34	269 54	336 44	334 47	259 71
Schuylkill,	67	76½	1 25	1 81	1 51	1 75	1 88	1 63	160½	107 53	122 78	200 62	290 50	242 35	280 87	301 74	261 61

A TABLE *showing the average daily and yearly earnings of employés in* *for the year ended*

COUNTY.	*a* Price paid for digging 100 bushels. *b* Per ton. *c* Per wagon.	AVERAGE DAILY EARNINGS.												Average number of days worked during the year.
		Miners.	Inside laborers.	Outside laborers.	Mule drivers.	Blacksmiths.	Carpenters.	Mining overseer.	Clerks.	Coke oven chargers.	Coke oven drawers.	Other employees.	Boys.	
Allegheny, ...	*a* $3 40	$3 00	$2 07	$1 97	$2 19	$2 37	$2 07	$2 87	$2 50	$1 37	$1 37	$2 31	$0 69	198
Beaver, ...	*b* 31	2 12	1 55	1 28	1 43	2 25	2 00	2 25	1 29	. .	. . .	1 25	. .	260
Bedford, ...	*b* 50	2 62	2 00	1 63	1 62	1 83	1 50	2 25	1 25	. . .	. .	1 59	. . .	268
Blair, ...	*b* 53½	2 05	1 50	1 30	1 28	1 88	1 73	2 43	1 60	1 38	1 27	1 57	. . .	265
Bradford, ...	*b* 67	2 09	1 50	1 44	1 52	2 10	1 61	3 33	2 16	. . .	. . .	1 48	75	275
Butler, ...	*b* 72	2 65	1 50	1 25	. . .	. . .	. .	. . .	. . .	. . .	. . .	1 00	. . .	255
Cambria, ...	*b* 46⅔	2 05	1 28	1 23	1 24	1 63	1 64	2 85	2 25	1 30	1 10	1 22	87	261
Centre, ...	*a* 3 00	2 00	2 00	1 50	2 00	. . .	. . .	. .	. . .	. . .	. . .	. . .	1 00	300
	b 55													
Clarion, ...	*b* 61¼	1 56	1 63	1 42	1 71	2 16	2 50	. .	2 00	. . .	. . .	. .	75	221
Clearfield, ...	*b* 50	2 20	1 96	1 69	1 91	2 02	1 87	2 70	2 62	1 50	. . .	2 53	65	198
Elk, ...	*b* 56¼	2 40	1 50	1 37	1 42	1 94	1 62	2 94	1 54	. .	. . .	1 30	. . .	270
Fayette, ...	*a* 2 93	2 20	1 84	1 53	1 81	2 04	1 93	2 43	2 02	1 85	1 83	2 00	95	216
	c 30													
Huntingdon, ...	*b* 50	2 00	1 62	1 55	1 55	1 66	1 57	3 06	2 11	1 00	1 20	1 30	. .	240
Jefferson, ...	*b* 52	2 06	1 53	1 45	1 62	1 94	2 00	1 87	1 96	1 50	1 50	1 25	75	211
Lawrence, ...	*b* 80	2 30	1 55	1 46	1 42	1 70	. . .	2 33	1 75	. . .	.	. . .	75	189
Lycoming, ...	*b* 55	2 20	1 55	1 25	1 70	1 90	1 90	2 40	1 67	. . .	. .	1 47	75	290
McKean, ...	*b* 68	2 17	1 90	1 37	1 48	2 25	1 75	2 91	1 67	. . .	. . .	1 76	1 16	273
Mercer, ...	*b* 55¼	1 94	1 60	1 28	1 50	2 08	1 83	3 20	2 18	. . .	. . .	2 33	50	174
Somerset, ...	*b* 62½	3 35	1 75	1 66	1 66	2 00	1 87	2 81	1 83	. .	. . .	. . .	. . .	251
	c 1 30													
Tioga, ...	*b* 63	2 25	1 69	1 40	1 59	1 93	1 88	2 72	2 17	1 45	1 50	1 30	97	232
Venango, ...	*b* 72½	1 81	.	1 20	1 69	1 50	. . .	2 25	2 00	. . .	. .	. . .	60	224
Washington, ...	*a* 2 92½	2 40	1 85	1 69	1 67	1 96	2 00	2 55	2 03	1 66	1 37	1 69	75	219
	b 85½													
Westmoreland, . . .	*a* 3 15	2 34	1 73	1 63	1 91	1 97	1 74	2 45	1 92	1 58	1 87	1 52	79	245
	b 52¾													
	c 32													

the Bituminous Coal mines, compiled from operators' report to the Bureau, December 31, 1880.

AVERAGE EARNINGS FOR THE YEAR.

Miners.	Inside laborers.	Outside laborers.	Mule drivers.	Blacksmiths.	Carpenters.	Mining overseer.	Clerks.	Coke oven chargers.	Coke oven drawers.	Other employees.	Boys.
$588 00	$405 72	$386 12	$429 24	$464 52	$405 72	$562 52	$490 00	$268 52	$268 52	$452 76	$135 24
551 20	403 00	332 80	371 80	585 00	520 00	585 00	335 40	. . . . .	. . . .	325 00	
702 16	536 00	436 84	434 16	490 44	402 00	603 00	335 00	. . . .	. . . . .	402 00	
543 25	397 50	344 50	339 20	498 20	458 45	643 95	424 00	365 70	336 55	416 05	
574 75	412 50	396 00	408 00	577 50	442 75	915 75	594 00	. . . . .	. . . .	407 00	206 25
675 75	382 50	318 75	. . . .	. . . . .	. . . . .	. . . . .	. . . .	. . . . .	. . . . .	255 00	
535 05	334 08	321 03	323 64	438 48	428 04	743 85	587 25	339 30	287 10	318 75	227 07
600 00	600 00	450 00	600 00	. . . .	. . . . .	. . . . .	. . . . .	. . . .	. . . .	. . . .	300 00
344 76	360 23	313 82	377 91	477 36	552 50	. . . . .	442 00	. . . .	. . . . .	. . . .	165 75
435 60	388 08	334 62	378 18	399 96	370 26	534 60	518 76	297 00	. . . . .	510 84	128 70
648 00	405 00	369 90	383 40	523 80	437 40	793 80	415 80	. . . .	. . . .	351 00	
511 20	452 64	388 68	445 26	501 84	474 78	597 78	496 92	455 10	450 18	492 00	234 70
480 00	388 80	372 00	372 00	398 40	376 80	734 40	506 40	240 00	288 00	312 00	
434 66	322 83	305 95	341 82	409 34	422 00	394 57	413 56	316 50	316 50	263 75	158 25
434 70	292 95	275 94	268 38	321 30	. . . . .	440 37	330 75	. . . . .	. . . . .	. . . . .	141 75
638 00	349 50	360 50	493 00	551 00	551 00	696 00	484 30	. . . .	. . . .	426 30	217 50
592 41	518 70	374 01	404 04	614 25	477 75	794 43	455 91	. . . . .	. . . . .	489 48	316 68
337 56	278 40	222 72	261 00	361 92	318 42	556 80	379 32	. . . . .	. . . . .	405 52	87 00
840 85	439 25	416 66	416 66	502 00	469 37	705 31	459 33				
522 00	392 08	324 80	368 88	417 76	426 16	621 04	503 44	336 40	348 00	301 60	225 04
405 44	. . . .	268 80	358 40	336 00	. . . . .	504 00	448 00	. . . . .	. . . . .	. . . . .	134 40
525 60	405 15	370 11	365 75	429 24	438 00	558 45	444 57	363 54	290 03	370 11	164 25
573 30	423 85	399 35	467 95	482 65	426 30	600 25	470 40	387 10	458 15	372 40	193 55

A TABLE *showing the average daily and yearly earnings of employés at Blast Furnaces, compiled from operators' reports to the Bureau, for the year ended December 31, 1880.*

COUNTY.	AVERAGE DAILY EARNINGS.									Number of days in operation during the year.	AVERAGE EARNINGS FOR THE YEAR.								
	Foundrymen.	Keepers.	Keepers' helpers.	Top fillers.	Bottom fillers.	Cindermen.	Barrowmen.	Hot blastmen.	Weighmen.		Foundrymen.	Keepers.	Keepers' helpers.	Top fillers.	Bottom fillers.	Cindermen.	Barrowmen.	Hot blastmen.	Weighmen.
Adams,	$1 25	$1 00	. . .	$1 00		$1 00	$0 85		$1 00	182	$227 50	$182 00	. . .	$ 82 00	. . . .	$182 00	$154 70	. . .	$182 00
Allegheny,	3 94	2 22	$1 72	1 93	$1 63	1 52	1 60	$1 72	1 70	337	1,327 78	748 14	$579 69	650 41	$545 94	512 24	539 20	$579 64	572 90
Armstrong,	3 20	1 92	1 65	1 81	1 45			1 35		275	880 00	528 00	453 75	477 75	398 75	. .		371 25	
Berks,	2 34	1 35	1 18	1 12	1 05	1 18	1 00	1 30	1 37	300	702 00	405 00	354 00	336 00	315 00	354 00	300 00	390 00	411 00
Blair,	3 61	1 62	1 46	1 29	1 29	1 28	1 10	. . .	1 45	361	1,303 21	584 82	527 06	465 69	465 69	462 08	397 10	. .	523 45
Bucks,	1 90	1 75	1 40	1 40	1 40	1 40	. .	. .	1 40	320	6 8 00	560 (5	448 00	448 00	448 00	448 00		. . . .	448 00
Centre,	2 00	1 75	. . .	1 40	. .	1 40	1 75	. .	1 40	330	660 00	577 50	. . .	462 00	. . .	462 00	577 50	. . . .	462 00
Chester,	1 17	93	. .	83	. . .	76	96			30	35 10	27 90	. .	24 90	. .	22 80	28 80		
Columbia,	2 87	1 50	1 14	1 14	1 14	1 14		1 14	1 25	360	1,631 20	540 00	410 40	410 40	410 40	410 40	. . .	410 40	450 00
Cumberland,	1 40	1 20	1 00	1 00	1 00	1 00	96		96	300	420 00	360 00	300 00	300 00	300 00	300 00	288 00	. . . .	288 00
Dauphin,	3 14	1 59	1 35	1 38	1 24	1 20		1 40	1 36	302	948 28	480 18	407 70	416 76	374 48	362 40	.	422 80	410 72
Erie,	2 50	1 75	1 50	1 50	1 50	1 50	1 25			220	550 00	385 00	330 00	330 00	330 00	330 00	275 00		
Fayette,	4 00	1 92	1 56	1 80	1 45	1 24	1 00	1 80	1 33	332	1,328 00	637 44	517 92	597 60	481 40	411 68	332 00	597 60	441 56
Franklin,	1 33	90		90	81	81	81	. . .	. .	270	359 10	243 00		243 00	218 70	218 70	218 70		
Huntingdon,	2 80	1 27	1 20	1 17	1 20	1 19	1 37	. . .	1 00	320	896 00	406 40	384 00	374 40	384 00	380 80	438 40	. . . .	320 00
Lancaster,	1 93	1 27	1 08	1 00	1 00	1 10		. .	. .	354	683 22	449 58	382 32	354 00	354 00	389 40			
Lawrence,	3 12	1 75	1 50	1 58	1 55	1 48	1 50	1 50	1 75	202	630 24	353 50	303 00	319 16	313 10	298 96	303 00	303 00	353 50
Lebanon,	2 50	1 50	1 21	1 21	1 10	1 20	. . .	.	1 80	365	9 2 50	547 50	441 65	441 65	401 50	438 00	. . . .		657 00
Lehigh,	2 27	1 63	1 48	1 43	1 43	1 34	. .	1 30	1 59	354	803 58	577 02	523 92	506 22	506 22	474 36	. . . .	460 20	562 86
Mercer,	3 40	1 76	1 52	1 52	1 52	1 60	1 42	1 53	1 50	294	999 60	515 64	446 88	446 88	446 88	470 40	417 44	449 82	441 00
Mifflin,	2 00	1 30	1 15	1 05	.	1 07	1 00	.	1 12	172	344 00	223 60	197 80	180 60		184 04	172 00	. . . .	192 64
Montgomery,	2 42	1 67	1 40	1 40	1 37	1 49	. . .	1 25	1 40	248	600 16	414 16	347 20	347 20	369 76	347 20	. . . .	312 00	347 20
Montour,	5 48	1 50	1 05	1 05	1 05	1 08	. . .		1 40	335	1,835 80	502 50	351 75	351 75	351 75	36 , 80	. . . .	. .	469 00
Northampton,	2 50	1 85	1 57	1 55	1 55	1 55	. . .	1 70	1 55	277	692 50	5 2 45	434 89	429 35	429 35	429 35	. . . .	459 00	429 35
Northumberland,		1 50	1 19	1 02	1 02	1 42	. . .	. . .	. . .	365	. .	547 50	434 35	372 30	372 30	518 30			
Perry,	2 25	1 50	1 25	1 20	1 10	1 10	. . .	. . .	. .	220	495 00	330 00	275 00	264 00	242 00	242 00			
Philadelphia,	4 11	2 20	1 65	1 55	1 50	1 50	. . .	. . .	1 55	180	739 80	396 00	297 00	279 00	270 00	270 00	. . . .	. . . .	279 00
Schuylkill,	2 62	1 40	1 21	1 20	1 15	1 15	. .	. .	.	291	762 42	407 40	352 11	349 20	334 65	334 65			
Westmoreland,	3 50	2 00	1 50	2 25	1 50	1 75	. . .	. . .	1 40	300	1,050 00	600 00	450 00	675 00	450 00	525 00	. . . .	. . . .	425 00
York,	2 17	1 40	1 20	1 10	1 10	1 10	. .	. .	. .	365	792 05	511 00	438 00	401 50	401 50	401 50			

EMPLOYEES' WAGES.—BLAST FURNACES—*Continued.*

County.	Average daily earnings.									Number of days in operation during the year.	Average earnings for the year.								
	Metal carriers.	Engineers.	Firemen.	Blacksmiths.	B'ksmiths' helpers	Carpenters.	Laborers.	Foremen and night foremen.	Other employees.		Metal carriers.	Engineers.	Firemen.	Blacksmiths.	B'ksmiths' helpers	Carpenters.	Laborers.	Foremen and night foremen.	Other employees.
Adams,	$1 00	$0 90	. . .	$1 90	. . .	.	$0 85			182	$182 00	$163 80	. .	$182 00	. . .	. . .	$154 70		
Allegheny,	2 00	2 31	$1 62	2 15	$1 48	$1 87	1 25	$3 00	$2 40	337	674 00	778 47	$545 94	724 55	$498 76	$630 19	421 25	$1,011 00	$808 80
Armstrong,	1 80	2 50	. .	2 00	1 37	1 78	1 12	2 75	1 75	275	475 00	687 50	. . . .	550 00	376 75	599 86	308 00	756 25	481 25
Berks,	1 30	1 35	. . .	1 36	1 07	1 32	92	1 45	1 21	300	390 00	405 00	. . .	408 00	321 00	396 00	276 00	435 00	363 00
Blair,	1 26	1 37	. .	1 75	1 15	1 70	1 00	2 34	90	361	454 86	494 57	. .	631 75	415 15	613 70	361 00	833 91	363 00
Bucks,	. .	1 50	1 25	1 35	1 05	1 50	1 00	2 30	1 17	320	. . .	480 00	400 00	432 00	336 00	480 00	320 00	736 00	374 00
Centre,	. . .	. . .	. . .	1 50	. . .	1 50	1 00	. . .	. . .	340	. . . .	. . .	. . . .	495 00	. . . .	495 00	330 00		
Chester.																			
Columbia,	1 14	1 50	. . .	1 50	1 07	1 50	97	. . .	. .	360	410 40	540 00	. . . .	540 00	425 20	540 00	349 20		
Cumberland,	1 00	. .	.	1 25	1 00	. .	90	.	. . .	360	360 00	. .	. .	375 00	300 00	. .	270 00		
Dauphin,	1 53	1 50	1 22	1 74	1 10	1 53	1 03	1 69	1 35	362	462 06	453 00	368 44	525 48	332 20	462 06	311 66	510 38	467 70
Erie,		2 16		1 75	. .	.	1 25	3 33	.	220	. . .	475 20	. . . .	385 00	. . . .	.	275 00	732 60	
Fayette,	1 87	1 79	1 27	2 00	1 22	1 79	1 18	2 00	1 82	332	620 84	594 28	421 64	664 00	405 04	594 28	391 76	664 00	604 24
Franklin,		1 00	.	1 20	. .	.	85	. . .	.	270	.	270 00	. . .	324 00	. .	.	229 50		
Huntingdon,	1 37	1 35	1 25	1 62	1 00	1 54	1 00	1 89	1 40	320	428 40	432 00	400 00	518 40	320 00	492 80	320 00	694 80	448 00
Lancaster,	1 26	1 25		1 40	1 10	1 47	93	3 00	1 10	354	446 04	442 50	.	495 60	389 40	520 38	329 22	1,062 00	389 40
Lawrence,	1 68	2 00	1 75	1 62	1 50	1 57	1 25	2 62	.	202	359 36	404 00	353 50	327 24	303 00	317 14	252 50	529 24	
Lebanon,		1 40		. .	. . .	. . .	1 00	1 10	1 00	365	. . .	511 00	. . . .	. .	. . .	.	365 00	401 50	365 00
Lehigh,	1 44	1 71	1 35	1 52	1 00	1 38	96	1 72	1 34	354	509 76	605 34	477 90	538 08	354 00	488 52	339 84	608 88	474 36
Mercer,	1 80	2 05	1 25	2 00	1 25	1 96	1 25	1 75	1 37	294	529 20	602 70	367 50	588 00	367 50	476 24	367 50	514 00	402 78
Mifflin,	1 17	1 38		1 56	1 10	1 37	1 00	2 07	. . .	172	201 24	237 36	. .	268 32	189 20	235 64	172 00	356 04	
Montgomery,	1 37	1 96	1 32	1 83	1 35	1 85	1 15	1 70	1 30	248	339 76	486 08	327 36	453 84	334 80	458 80	285 20	421 60	322 40
Montour,	1 26	1 50	1 07	1 60	1 00	1 75	95	1 25	50	335	422 10	502 50	358 45	536 00	335 00	586 25	318 25	418 75	167 50
Northampton,	1 53	1 93	1 25	2 06	1 17	2 02	1 05	. . .	1 65	277	423 81	534 61	346 25	570 62	324 09	559 54	290 85	. . . .	457 05
Northumberland,	1 00	1 50	. .	1 50	1 00	1 15	1 00	. . .	. . .	365	365 00	547 50	. . . .	547 50	365 00	419 75	365 00		
Perry,	1 10	1 75	. . .	1 50	1 00	1 50	1 00	. . .	1 25	220	242 00	385 00	. . . .	330 00	220 00	330 00	220 00	. . . . .	275 00
Philadelphia,	. . .	2 50	. . .	2 00	1 35	. .	1 25	. .	1 50	180	.	450 00	. . .	360 00	243 00		225 00	. . .	270 00
Schuylkill,	1 25	1 30	1 05	1 25	95	1 25	95	1 64	1 00	291	363 75	378 30	305 55	363 75	276 45	363 75	276 45	477 24	291 00
Westmoreland,	2 00	2 45	. .	2 15	1 50	2 30	1 25	2 50	2 00	300	600 00	735 00	. . .	645 00	450 00	690 00	375 00	750 00	600 00
York,	1 35	1 25	. . .	1 40	1 00	1 20	1 00	. . .	1 25	365	492 75	456 25	. . .	511 00	365 00	438 00	365 00	. . . .	456 25

TABLE *showing the prices paid per ton to the respective occupations in the rolling-mills of Pennsylvania, compiled from reports of the operators to this office for the year ended December 31, 1880:*

COUNTY.	Puddlers.	Heaters. *a* Bar mill. *b* Plate mill. *c* Sheet mill. *d* Rail mill. *e* Nail plate.	Rollers—muck mill.	Rollers. *a* Bar mill. *b* Rail mill.	Roughers. *a* Bar mill. *b* Guide mill.	Catchers. *a* Bar mill. *b* Guide mill.	Rollers. *a* Guide mill. *b* Plate mill. *c* Sheet mill.
Allegheny,	$5 50	*a*$0 65	$0 68¾	*a*$0 65	*a*$0 16½	*a*$0 48¾	*a*$2 50
							*a*3 40
Armstrong,	5 50	*a*65	45	*a*50			*a*9 00
			50				*c*8 00
			68				
Beaver,	5 50	*a*75	45	*a*1 00	*a*35	*a*25	
Berks,	3 50	*a*65	28	*a*85	*b*30	*b*18	*a*90
	3 75	*d*34	17				*b*60
	4 00						*a*2 87
	4 50						
Blair,	4 00	*a*65	30	*a*65		*a*34	*a*2 70
							7 20
Bucks,		1 25			*b*49	*b*10	*a*1 56
Chester,	3 57	*b*1 04					*b*33
	4 25	*b*1 26					
Columbia,	4 15	45	35	*a*45	25	*a*25	
		*a*60			*a*40		
Cumberland,	4 00	*e*44	15		12	11	*b*29
Dauphin,	4 00	*a*64	20	*a*36	*b*50	*b*33	*a*97
					*a*27	*a*19	
Lackawanna,		60		60	*a*23		60
		*a*75		*a*75	40		*a*75
Lancaster,	4 25	*a*63	15	*a*36¼	*b*37	*b*22	*a*70
			18		*a*21½	*a*17	
Lawrence,	5 50	*a*65	68	*a*65			*a*2 40
Lebanon,	4 00		17½	*a*17½			
				1 10			
Lehigh,	4 00	*a*54, *b*63, 81	23	*a*32	*b*36	*b*20	*a*72
			18		*a*3	*a*14½	
Mercer,	5 50	*a*65	68¾	*a*70			
Mifflin,	4 20	*a*51	35	*a*68	*b*40	*b*20	*a*80
					*a*30	*a*20	
Montgomery,	4 40	*b*90	17	*a*25			
	4 00	1 00	24	50			
	3 50						
Montour,	3 75	*d*32	50	*b*8.7	6	6	
	4 00		54	*b*12			
Northampton,	4 40	*a*50, *c*1 44	30	*a*40		*a*28	*c*2 07
		*c*2 15					2 90
Perry,	4 25	*a*62	19	*a*38	*a*25	*a*20	*a*1 05
Philadelphia,	4 25	*a*65	50	*a*40	*a*21	*a*17	*a*68
	4 50	1 00		*a*54½	38	23½	1 20
Schuylkill,	3 75	*b*38		*b*8½	5½	5½	
	4 00	*a*65		*a*75	*a*32	*a*20	*a*75

NOTE.—The average earnings of persons employed at the foregoing occupations is difficult to determine, as the prices paid for help is not uniform. In some localities puddlers, out of the earnings of the furnace, pay the helper one third and five per cent. of gross earnings; in others, only one third; while in others, the firm pays a portion of the helper's wages. During excessive warm weather the puddler frequently employs two helpers, in which case he divides one half the earnings of the furnace between the two. The wages of rollers vary with the number of furnaces heating for the train. These details are not given, hence the inability to give accurately the average earnings. The average production of a single puddling furnace is about 2,300 pounds muck bar. The average production of a bar mill heating furnace is about nine tons. Plate mill furnaces, as a rule, are provided with appliances for readily handling heavy piles, and, as a result, the production is much greater. The smaller sizes of iron is rolled upon guide mills, and, as a result, the production is comparatively small; but wages are correspondingly great as those paid upon other mills, the smaller sizes always commanding the highest prices.

A TABLE *showing the average daily and yearly earnings of employés on day's wages in the* ROLLING-MILLS, *compiled from operators reports to the Bureau, for the year ended December 31, 1880.*

COUNTY.	AVERAGE DAILY EARNINGS.							Average number of days worked during the year.	AVERAGE EARNINGS FOR THE YEAR.						
	Foremen.	Shearmen.	Straighteners.	Hook-ups.	Engineers.	Millwrights.	Blacksmiths.		Foremen.	Shearmen.	Straighteners.	Hook-ups.	Engineers.	Millwrights.	Blacksmiths.
Allegheny,	$3 44	$1 69	$1 65	$1 64	$2 53	$2 81	$2 36	258	$887 52	$436 02	$425 70	$423 12	$652 74	$724 98	$608 88
Armstrong,	5 00	1 60	. . . . .	1 50	1 68	2 00	2 25	250	1,250 00	400 00	. . . . .	375 00	420 00	500 00	562 50
Beaver,	3 00	1 50	. . . . .	1 80	2 50	. . . . .	2 00	250	750 00	375 00	. . . . .	450 00	625 00	. . . . .	500 00
Berks,	2 89	1 65	1 25	. . . . .	1 74	. . . . .	1 79	263	760 07	433 95	328 75	. . . . .	457 62	. . . . .	470 77
Blair,	2 91	1 87	1 14	1 10	1 61	2 00	1 82	251	759 51	488 07	297 54	287 10	420 21	522 00	475 02
Bucks,	. . . .	1 89	1 00	1 25	2 25	. . . .	1 75	300	. . . .	540 00	300 00	375 00	675 00	. . . . .	525 00
Chester,	3 50	1 46	1 33	. . . . .	2 30	2 95	2 19	274	959 00	400 04	364 42	. . . .	630 20	808 30	600 06
Columbia,	3 58	1 50	1 10	1 17	1 75	1 90	1 73	254	909 32	381 00	279 40	297 18	444 50	482 60	439 42
Dauphin,	4 00	1 25	1 20	1 00	1 58	. . . .	1 50	285	855 00	356 25	342 00	285 00	450 30	. . . .	427 50
Lackawanna,	2 50	1 25	1 25	1 10	2 25	. . . . .	1 75	251	1,004 00	313 75	313 75	276 10	564 75	. . .	439 25
Lancaster,	3 33	1 67	95	63	1 80	1 80	1 68	218	545 00	364 06	207 10	143 88	382 40	392 40	366 24
Lawrence,	2 50	1 62	1 60	1 15	2 12	2 62	2 50	180	599 40	291 60	288 00	207 00	381 60	471 60	450 00
Lebanon,	2 50	1 25	1 50	1 25	1 75	. .	1 50	287	717 50	358 75	430 50	358 75	502 25	. . . .	430 50
Lehigh,	2 37	1 35	1 20	1 15	1 50	2 29	1 70								
Mercer,	3 41	2 32	1 50	1 10	2 02	2 25	2 27	199	678 59	461 68	298 50	218 90	401 98	447 75	451 73
Mifflin,	3 30	1 00	75	75	1 75	. .	1 60	290	957 00	290 00	217 50	2 7 50	507 50	. . .	464 00
Montgomery,	3 00	2 09	1 64	1 20	2 20	2 25	2 15	248	744 00	518 32	406 72	297 60	545 60	558 00	533 20
Montour, (*rail mill,)	5 25	1 60	*5 00	*2 25	1 77	2 06	1 72	283	1,485 75	452 80	1,415 00	636 75	500 91	582 98	486 76
Northampton,	3 50	. . . . .	. . . . .	. . .	2 25	2 37	1 25	266	931 00	. . . .	. . . .	. . . .	598 50	630 42	332 50
Perry,	3 50	2 20	1 50	70	2 15	2 25	1 75	300	1,050 00	660 00	450 00	210 00	645 00	675 00	525 00
Philadelphia,	3 30	1 35	1 60	75	2 17	2 58	2 46	283	933 90	382 05	452 80	212 25	614 11	739 14	696 18
Schuylkill,	3 00	. . . . .	1 80	95	1 50	1 50	1 45	300	900 00	. . . . .	540 00	285 00	450 00	450 00	435 00

EMPLOYEES WAGES—ROLLING-MILLS—*Continued.*

County.	Average daily earnings.							Average number of days worked during the year.	Average earnings for the year.							
	Blacksmith's helpers.	Carpenters.	Firemen.	Laborers.	Boys.	Nail-feeders.	Other employees.		Blacksmith's helpers.	Carpenters.	Firemen.	Laborers.	Boys.	Nail-feeders.	Other employees.
Allegheny,	$1 48	$1 89	$1 55	$1 24	$0 76	$1 50	$1 42	258	$351 84	$497 62	$399 90	$319 92	$196 08	$387 00	$376 36
Armstrong,	1 12	1 56	1 25	1 20	82	. . .	1 75	250	280 00	390 00	312 50	300 00	205 10	. . .	437 50
Beaver,	1 25	. . .	1 37	1 25	75	. . .	1 50	250	312 50	. . .	342 50	312 50	187 50	. . .	375 00
Berks,	1 15	1 53	1 00	1 03	56	. . .	1 26	263	302 45	402 39	263 00	270 89	147 28	. . .	331 38
Blair,	1 05	1 10	1 36	1 05	62	. . .	. . .	261	274 05	287 10	354 36	274 05	161 82	. . .	. . .
Bucks,	. . .	. . .	. . .	1 50	66	. . .	. . .	300	. . .	. . .	. . .	450 00	198 00	. . .	375 00
Chester,	1 17	1 63	1 25	1 12	65	. . .	1 48	274	320 58	446 62	341 50	306 88	178 10	. . .	405 52
Columbia,	1 12	1 50	1 26	1 10	62	. . .	1 40	254	284 48	381 00	320 04	279 40	157 48	. . .	355 60
Dauphin,	1 00	1 50	1 00	1 00	35	. . .	1 25	285	285 00	427 50	285 00	285 00	99 75	. . .	356 25
Lackawanna,	1 25	. . .	1 35	1 10	82	. . .	1 10	251	313 75	. . .	338 85	276 10	205 82	. . .	276 10
Lancaster,	1 10	1 30	1 10	1 00	59	. . .	1 30	218	239 80	283 40	239 80	218 00	128 62	. . .	283 40
Lawrence,	1 50	1 75	1 75	1 25	1 00	. . .	. . .	180	270 00	315 00	315 00	225 00	180 00	. . .	. . .
Lebanon,	1 12	. . .	1 10	1 00	37	. . .	. . .	287	321 44	. . .	315 70	287 00	106 19	. . .	. . .
Lehigh,	1 10	1 75	1 10	1 10	60	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Mercer,	1 40	1 75	1 75	1 24	67	1 28	1 50	199	278 60	348 25	348 25	246 76	173 13	254 72	298 50
Mifflin,	1 00	1 50	. . .	1 00	. . .	. . .	1 25	290	290 00	435 00	. . .	290 00	. . .	. . .	362 50
Montgomery,	1 20	1 80	. . .	1 10	67	. . .	1 40	248	297 60	446 40	. . .	272 80	166 16	. . .	347 20
Montour,	1 03	1 96	1 00	1 00	62	. . .	1 35	283	291 49	537 70	283 00	283 00	175 46	. . .	382 05
Northampton,	. . .	. . .	. . .	1 50	1 00	. . .	2 50	266	. . .	. . .	. . .	399 00	266 00	. . .	665 00
Perry,	1 20	1 70	. . .	1 10	65	1 10	. . .	300	360 00	510 00	. . .	330 00	195 00	330 00	. . .
Philadelphia,	1 35	2 00	1 40	1 25	65	. . .	1 55	283	382 05	566 00	396 20	353 75	183 95	. . .	438 65
Schuylkill,	1 00	1 27	1 27	1 00	65	. . .	1 00	300	300 00	381 00	381 00	300 00	195 00	. . .	300 00

Average daily earnings of employees at BESSEMER STEEL WORKS.

OCCUPATIONS.	Cambria Iron Company. Daily earnings.	Pennsylvania Steel Works. Daily earnings.
Converting Department.		
Foremen,	$5 00	$5 00
Blowers,	3 00	2 00
Metal handlers, wheelers, &c	1 50	1 25
Weighmasters,	2 75	1 25
Stockers, iron, etc.,	2 50	1 25
Hoist hydraulic hands,	2 00	1 25
Chargers,	2 50	1 75
Iron and spiegel melters,	3 00	4 00
Melters' helpers,	2 50	2 00
Cinder tappers,	2 50	1 60
Runner hands,	2 00	1 60
Converter hands,	4 00	2 00
Converter bottom builders,	3 00	1 60
Ladle hands,	2 50	1 70
Blooming Department.		
Heaters,	3 50	4 75
Heaters' helpers,	3 00	4 00
Rollers,	3 00	2 75
Assistant rollers,	2 50	2 60
Screwsman,	2 50	
Shearsman,	2 50	
Leverman,		2 25
Hammerman,	2 50	5 00
Rail Department.		
Heaters,	4 00	6 00
Heaters' helpers,	2 50	4 50
Chargers and drawers,	2 00	2 25
Door hands,		1 25
Recorders,	2 50	1 75
Stockers,	2 00	
Buggymen,	2 75	3 00
Roughers,	3 25	3 00
Second roughers,		2 80
Catchers,	3 00	2 80
Extra catchers,	2 50	2 25
Hookers,	2 50	2 75
Dragouts,	2 00	
Hot-bed hands,	2 50	1 50
Stampers,	1 00	1 75
Cold straighteners,	$4 00	$4 50
Gaggers,	2 50	3 00
Drillers,	2 00	2 00
Chip and filers,	2 00	1 25
Straightening press hands,	1 75	1 75
Inspectors,	2 00	1 25
Rail loaders,	2 50	1 75
Gas and Steam Producing Department.		
Foremen,		3 75
Ashmen,	1 20	1 32
Firemen,	$1 30 to 2 00	1 62
Water tender,	1 55	
Forge Department.		
Heaters,		4 50
Heaters' helpers,		3 50
Door hands,		1 40
Buggymen,		2 25
Hammermen,		5 00
Tongsmen,		2 50
Hookers, etc.,		2 00
Locomotive Department.		
Foremen,	2 50	4 00
Weighmaster,	3 00	1 60
Hostlers,	55 to 1 25	
Engineers,	1 60	2 50
Brakemen,	1 22	1 80
Miscellaneous.		
Engineers,	1 10 to 2 00	2 25
Machinists,	1 00 to 3 50	2 25
Machinists' helpers,	1 00 to 1 25	1 10
Blacksmiths,	1 65 to 2 75	2 20
Blacksmiths' helpers,	1 10 to 1 25	1 10
Carpenters,	1 20 to 2 25	1 65
Foundrymen,	40 to 2 50	2 10
Masons and bricklayers,	1 90	2 00
Masons' helpers,	1 20	1 25
Laborers,	1 05 to 1 25	1 10

A TABLE *showing the average daily and yearly earnings of employés for the year ended*

COUNTY.	AVERAGE DAILY EARNINGS.												Number of days in operation.	Yearly earnings.
	Foremen.	Iron molders.	Machinists, (best.)	Machinists, (ordinary.)	Pattern makers.	Engineers.	Blacksmiths.	Blacksmiths' helpers.	Carpenters.	Laborers.	Other employees.	Boys.		Foremen.
Allegheny,	$3 22	$2 34	$2 54	$1 86	$2 49	$2 08	$2 19	$1 54	$2 00	$1 44	$1 87	$0 81	296	$953 12
Armstrong,	. . .	2 00	. . .	. .	.	. .	. .	. . .	.	1 25	. .	75	286	.
Beaver,	2 75	2 87	. . .	. . .	2 00	1 75	1 75	. . .	2 00	1 50	2 50	1 00	250	687 50
Bedford,	1 92	1 48	2 50	1 50		. . .	1 25	.	. . .	1 00	. .	. .	2 5	432 00
Berks,	2 31	1 89	1 69	1 43	1 71	1 39	1 63	1 08	1 36	1 07	1 22	64	272	628 32
Blair,	3 00	1 90	2 00	1 50	2 25	1 50	2 50	1 00	1 65	1 25	1 40	65	308	924 00
Bradford,	. .	2 25	3 00	1 50	2 50	.	. .	. .	.	1 25	2 25	. . .	275	. . .
Bucks,	2 20	2 07	1 75	1 60	2 50	1 85	1 75	1 47	2 00	1 25	1 50	. . .	252	554 40
Butler,	. . .	2 25	. . .	. . .	. . .	. .	. .	. . .	.	1 00	. . .	.	275	. .
Carbon,	2 50	2 44	. . .	. .	.	.	.	. . .	1 50	1 15	. . .	72	282	705 00
Chester,	2 44	1 67	2 17	1 50	2 00	1 37	1 67	1 17	1 62	1 05	1 50	55	303	739 32
Clarion,	1 50	1 37		.		. . .	. .	.	1 50		.		167	250 50
Clearfield,	3 00	2 20	2 40	2 00	2 00	1 50	2 75	1 25	.	1 25	2 00	75	304	912 00
Clinton,	3 18	1 83	2 28	1 69	2 47	1 80	2 13	1 26	1 50	1 20	1 45	59	304	966 72
Columbia,	1 62	1 56	.	1 50	1 50	1 25	1 50	1 00	. .	1 00	. .		261	422 82
Crawford,	3 53	1 87	2 62	1 50	2 58	2 00	2 75	1 62	.	1 33	2 00	55	204	720 12
Cumberland,	2 00	1 40	2 00	1 25	1 50	1 25	1 25	80	1 20	80	80	55	300	600 00
Dauphin,	1 10	. . .	1 25	1 10	1 25	. . .		.		. . .	. .	.	260	286 00
Delaware,	2 50	2 00	2 17	1 67	1 83	. . .	1 92	1 00	1 75	1 33	1 65	80	308	770 00
Elk,	. . .	1 67	2 00	. . .		. .	.	. . .		. .	. . .		150	. . . .
Erie,	3 15	2 27	2 30	1 62	2 28	1 64	2 30	1 22	1 62	1 33	1 73	72	300	945 00
Huntingdon,	. . .	1 60	. . .	. .	. . .	. . .	. . .	. . .	. . .	. . .	1 25	. . .	308	. . . .
Indiana,	. . .	1 50	. . .	. .	. . .	. . .	. .	. .	. .	. . .	1 50	. . .	300	. . . .
Lackawanna,	3 37	1 77	2 10	1 85	1 95	2 03	2 25	1 30	1 77	1 25	2 66	48	264	889 68
Lancaster,	3 00	1 37	1 75	1 60	1 75	1 00	2 00	1 00	. . .	92	1 00	57	203	609 00
Lawrence,	2 50	2 00	2 37	1 50	1 75	1 25	2 25	1 00		1 12	1 92	1 03	295	737 50
Lebanon,	3 00	1 50	1 50	1 25	1 50	1 40	1 40	90	1 50	80	1 25	39	300	900 00
Lehigh,	2 24	1 76	1 78	1 17	1 62	1 27	1 82	1 17	1 36	1 03	1 62	54	283	645 12
Luzerne,	2 25	1 72	2 05	1 82	1 93	1 40	2 12	1 20	1 50	1 22	1 30	50	277	623 25
Lycoming,	3 25	1 75	2 25	1 75	2 00	1 37	2 00	1 12	. . .	1 00	2 00	65	304	988 00
Monroe,	. . .	2 00	2 25	1 75	1 75		1 75	. . .	. . .	.	. .	90	302	. .
Montgomery,	3 02	2 20	2 36	1 97	2 08	1 50	2 30	1 27	. . .	1 25	1 81	68	309	933 18
Montour,	. . .	2 00	2 25	1 50	2 30	. . .	2 25	1 20	1 50	1 25	1 62	50	310	. . .
Northampton,	2 67	1 64	1 73	1 55	2 10	1 62	1 76	1 32	1 54	1 07	1 40	1 00	304	811 68
Northumberland,	2 12	1 75	2 25	1 50	1 67	87	1 75	80	1 25	1 00	. . .	75	279	591 48
Perry,	. .	1 50	.	. . .	. .				1 09	1 00	. . .	.	291	. . .
Philadelphia,	3 70	2 41	2 39	2 09	2 30	2 18	2 12	1 29	2 13	1 42	2 01	74	300	1,111 00
Potter,	. . .	2 00		. .	. . .		. . .	. . .	. .			. .	50	. . .
Schuylkill,	2 50	1 72	2 10	1 70	2 01	1 34	1 90	1 20	1 64	1 12	1 76	67	297	741 50
Somerset,	2 00	1 50	1 60	. . .	2 00	1 00	1 65	1 00	. . .	1 00		65	254	508 00
Tioga,	2 50	1 42	. . .	. . .	. . .	. . .	. . .	. . .	. .	1 50	1 00	50	256	640 00
Union,	. .	1 25	. . .	. . .	. .	. .		. . .	1 25	1 00	. . .	77	300	. . .
Warren,	3 75	2 25	2 75	2 00	2 75	2 00	3 50	1 50	2 00	1 50	2 75	1 00	250	937 50
Wyoming,	. . .	1 25	3 00	. .	1 30	. . .	. . .	. . .	. . .	. .	. . .	50	300	. . . .

OF IRON FOUNDRIES, *compiled from operators' reports to the Bureau, December 31, 1880.*

AVERAGE EARNINGS FOR THE YEAR.											COUNTY.
Iron molders.	Machinists, (best.)	Machinists, (ordinary.)	Pattern makers.	Engineers.	Blacksmiths.	Blacksmiths' helpers.	Carpenters.	Laborers.	Other employees.	Boys.	
$692 64	$751 84	$550 56	$737 04	$615 68	$648 24	$455 81	$592 00	$126 24	$553 52	$239 76	Allegheny.
572 00	. . .	. . . .	. . . .	. .	. . . .	. . . .	. . . .	357 50	. . . .	214 50	Armstrong.
717 50	. .	500 00	437 50	437 50	. . .	500 00	315 00	625 00	250 00	. . .	Beaver.
333 00	562 50	337 50	. .	. .	281 25	. . .		225 00	. . . .	. . .	Bedford.
514 08	459 68	383 96	465 12	378 08	443 36	293 76	369 92	291 04	331 84	174 08	Berks.
585 20	676 00	462 00	693 00	462 00	770 00	308 00	508 20	385 00	431 20	200 20	Blair.
618 75	825 00	412 50	687 00	. .	. .	. .	. .	343 75	618 75	. . .	Bradford.
521 64	411 00	403 20	630 00	456 20	411 00	370 44	504 00	315 00	378 00	. . . .	Bucks.
618 75	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	375 00	. . .	. .	Butler.
688 08	. .	. . . .	. .	. . . .	. . . .	. . .	423 00	324 30	. . .	203 04	Carbon.
506 01	657 51	454 50	606 60	415 11	506 01	354 51	490 86	318 15	454 50	166 65	Chester.
223 79	.	. . .	. . .	. . . .	. .		250 50	.	. .	. .	Clarion.
668 80	729 60	608 00	678 00	456 00	836 00	380 00	.	380 00	608 00	228 00	Clearfield.
556 32	693 12	513 76	750 80	547 20	647 52	383 04	453 00	364 80	440 80	179 36	Clinton.
417 16	. .	591 50	391 50	326 25	391 50	261 00	. . . .	261 00	. .	. .	Columbia.
381 48	534 48	306 00	526 32	408 00	561 00	334 48	. . . .	271 32	408 00	112 20	Crawford.
420 00	630 00	375 00	450 00	375 00	375 00	240 00	360 00	240 00	240 00	165 00	Cumberland.
. .	325 00	236 00	325 00	. . . .				. .	. .	. . . .	Dauphin.
616 00	668 36	514 33	583 64	. . . .	691 36	308 00	539 00	439 64	511 28	246 40	Delaware.
250 59	300 00	. .	.	.	.			. .	. .	. . . .	Elk.
681 00	690 00	486 00	684 00	492 00	690 00	366 00	486 00	399 00	519 00	216 00	Erie.
492 80	. .	. . . .	. . . .	. . . .	. . .	. . . .	. . . .	. . . .	385 00	. . . .	Huntingdon.
450 00	. .	. . .	.	.	. . . .	. . .	. .	. .	450 00	. . . .	Indiana.
467 23	554 49	488 40	514 80	535 92	594 00	313 20	467 28	330 00	702 21	126 72	Lackawanna.
278 11	355 25	331 80	355 25	203 00	406 00	203 00	. . . .	186 76	203 00	115 71	Lancaster.
590 00	699 15	442 50	592 25	368 75	663 75	295 00	. . . .	330 40	566 40	303 85	Lawrence.
450 60	450 00	375 00	450 00	420 00	420 00	270 00	420 00	240 00	375 00	117 00	Lebanon.
506 88	502 61	336 93	466 56	365 76	524 16	336 96	391 68	296 64	466 56	155 52	Lehigh.
476 44	567 85	434 14	534 61	387 80	587 24	332 40	445 50	337 94	360 10	138 59	Luzerne.
532 00	684 00	532 00	608 00	416 48	608 00	349 48	. . . .	304 00	638 00	197 60	Lycoming.
624 00	702 00	546 00	546 00	. .	546 00	.	. . . .			280 80	Monroe.
679 80	729 24	608 73	642 72	463 50	710 70	392 43	. . . .	388 25	559 29	210 12	Montgomery.
620 00	697 50	465 00	713 00	. .	697 50	372 00	465 00	387 50	442 20	155 00	Montour.
498 56	525 92	471 20	638 40	492 48	535 04	401 28	468 16	375 28	476 00	304 00	Northampton.
488 25	627 75	418 50	465 93	242 93	488 25	223 20	348 75	279 00	. . .	209 25	Northumberland.
436 50	. .	. . . .	. . . .	. .	. .	. .	387 11	291 00	.	. .	Perry.
723 00	777 00	627 00	690 00	654 00	636 00	357 00	639 00	426 00	603 00	222 00	Philadelphia.
100 00	. .	.	.	.	.	.	.	.			Potter.
510 84	623 70	504 90	596 97	397 98	564 30	356 40	487 08	332 64	522 72	278 99	Schuylkill.
331 00	406 40	. . . .	508 00	254 00	419 10	251 00	. . . .	254 00		165 10	Somerset.
363 52	. . . .	. . . .	. . . .	. . . .	. . .	. . . .	. . .	384 00	256 00	128 00	Tioga.
375 00	.	. . . .	. .	. . . .	. .		375 00	300 60		231 00	Union.
562 50	687 50	500 00	687 50	500 00	875 00	375 00	500 00	375 00	687 50	250 00	Warren.
375 00	900 00	. . . .	390 00	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	150 00	Wyoming.

A TABLE *showing the average daily and yearly earnings of employés in the manufacture of* WINDOW-GLASS, *as compiled from operator's reports to the Bureau, for the year ended December 31, 1880:*

COUNTY.	AVERAGE DAILY EARNINGS.									Average number of days in operation during the year.	AVERAGE EARNINGS FOR THE YEAR.								
	Manager.	Foremen.	Blowers of double-strength glass.	Blowers of single-strength glass.	Gatherers of double-strength glass.	Gatherers of single-strength glass.	Flatteners.	Cutters.	Assorters of glass.		Manager.	Foreman.	Blowers of double-strength glass.	Blowers of single-strength glass.	Gatherers of double-strength glass.	Gatherers of single-strength glass.	Flatteners.	Cutters.	Assorters of glass.
Allegheny,	$5 00	$4 67	$8 30	$5 30	$3 74	$2 90	$6 95	$4 50	. . .	253	$1,265 00	$1,181 51	$2,099 90	$1,340 90	$946 22	$733 70	$1,758 35	$1,138 50	
Fayette,	4 16	. .	. .	4 16		2 40	3 46	4 16	$4 16	288	1,198 08	. . . . .	. . . . .	1,198 08	. . . .	691 20	996 48	1,198 08	$1,198 08
Lawrence,	4 00	3 00	6 00	4 75	3 25	3 00	4 75	3 00	.	270	1,080 00	810 00	1,620 00	1,282 50	877 50	810 00	1,282 50	810 00	

WINDOW-GLASS—*Continued.*

COUNTY.	AVERAGE DAILY EARNINGS.									Average number of days in operation during the year.	AVERAGE EARNINGS FOR THE YEAR.								
	Layers out—Flattening department.	Layers in—Flattening department.	Leer tenders—Flattening department.	Batch mixer.	Lime sifter.	Sand sifter.	Master teazer.	Master teazer's helper.	Teazers.		Layers out—Flattening department.	Layers in—Flattening department.	Leer tenders—Flattening department.	Batch mixer.	Lime sifter.	Sand sifter.	Master teazer.	Master teazer's helper.	Teazers.
Allegheny,	$2 17	$2 25	$1 79	$2 15	$1 96	$2 10	$3 27	$2 05	$2 05	253	$549 01	$569 25	$452 87	$543 95	$495 88	$531 30	$827 31	$518 65	$51 65
Fayette,	2 00	2 00	1 66	1 66	1 66	1 66	3 00	2 00	2 00	288	576 00	576 00	478 08	478 08	478 08	478 08	864 00	576 00	576 00
Lawrence,	1 50	. . .	1 50	1 50	1 50	1 50	3 15	2 00	2 00	270	405 00	. . . . .	405 00	405 00	405 00	405 00	850 50	540 00	540 00
Tioga,	. . .	. . .	. . .	1 54	1 54	. . .	3 46	1 54	1 54	260	. . . .	. . . . .	. . . . .	400 40	400 40	. . . . .	899 60	400 40	400 40

WINDOW-GLASS—*Continued.*

County.	AVERAGE DAILY EARNINGS								Average number of days in operation during the year.	AVERAGE EARNINGS FOR THE YEAR.							
	Coal wheelers.	Pot makers.	Pot maker's assistants.	Glass packer.	Glass packer's assistants.	Laborers.	Teamsters.	Other employees.		Coal wheelers.	Pot makers.	Pot maker's assistants.	Glass packer.	Glass packer's assistants.	Laborers.	Teamsters.	Other employees.
Allegheny,	$2 02	$3 25	$1 60	$3 19	$1 92	$1 50	$1 94	$2 25	253	$511 06	$822 25	$404 80	$807 07	$485 76	$379 50	$490 82	$569 25
Fayette,	2 00	3 50	1 66	2 00	2 00	1 50	1 50	1 66	288	576 00	1,008 00	478 08	576 00	576 00	432 00	432 00	478 08
Lawrence,	2 00	3 00	1 50	1 50	....	1 25	2 75	1 62	270	540 00	810 00	405 00	405 00	.....	337 50	742 50	437 40
Tioga,	1 23	2 69	1 25	2 12	....	1 12	1 12	1 25	260	319 80	699 40	325 00	551 20	.....	291 20	291 20	325 00

A TABLE *showing the average daily and year earnings of employés in the manufacture of* FLINT AND GREEN GLASS WARE, *as compiled from operators' reports to the Bureau, for the year ended December 31, 1880.*

County.	AVERAGE DAILY EARNINGS.									Average number of days in operation during the year.	AVERAGE EARNINGS FOR THE YEAR.								
	Pressers, first class.	Pressers, second class.	Pressers, third class.	Handlers.	Finishers.	Foot finishers.	Mould, chimney, and other blowers.	Gatherers.	Snapping and carrying boys.		Pressers, first class.	Pressers, second class.	Pressers, third class.	Handlers.	Finishers.	Foot finishers.	Mould, chimney, and other blowers.	Gatherers.	Snapping and carrying boys.
Allegheny,	$4 17	$3 61	$3 05	$1 22	$3 02	$2 66	$3 91	$2 12	$0 83	228	$950 76	$823 08	$695 40	$962 16	$688 56	$606 48	$891 48	$483 36	$189 24
Beaver,	4 00	3 50	3 00	5 00	3 05	2 60	4 00	2 35	70	250	1,000 00	875 00	750 00	1,250 00	762 50	650 00	1,000 00	587 50	175 00
Philadelphia,	...	...	...	..	4 43	2 90	3 54	1 32	72	260	....	....	....	.....	1,151 80	754 00	920 40	343 20	187 20

FLINT AND GREEN GLASS WARE—*Continued.*

COUNTY.	AVERAGE DAILY EARNINGS.									Average number of days in operation during the year.	AVERAGE EARNINGS FOR THE YEAR.								
	Mold makers.	Mold cleaners, greasers, and holders.	Mixers.	Teazers.	Leer-tenders.	Cutters.	Grinders.	Roughers.	Shearers.		Mold makers.	Mold cleaners, greasers, and holders.	Mixers.	Teazers.	Leer-tenders.	Cutters.	Grinders.	Roughers.	Shearers.
Allegheny,	$3 44	$1 50	$2 02	$2 11	$1 41	$2 00	$1 50	. . .	. . .	240	$825 60	$360 00	$484 80	$506 40	$338 40	$480 00	$360 00		
Beaver,	2 95	1 00	2 00	1 91	1 66	1 35	1 25	. . .	. . .	285	840 75	285 00	570 00	544 35	473 10	384 75	356 25		
Philadelphia,	. . .	52	. . .	. . .	1 50	2 25	. . .	$1 58	$2 25	271	. . . . .	140 92	. . . .	. . . . .	406 50	609 75	. . . . .	$428 18	$609 75

FLINT AND GREEN GLASS WARE—*Continued.*

COUNTY.	AVERAGE DAILY EARNINGS.									Average number of days in operation during the year.	AVERAGE EARNINGS FOR THE YEAR.								
	Stopper maker.	Stopper grinder.	Selecters.	Engravers.	Mold, papering and packing, and other boys.	Packers.	Engineers.	Laborers.	Other employees.		Stopper maker.	Stopper grinder.	Selecters.	Engravers.	Mold, papering and packing, and other boys.	Packers.	Engineers.	Laborers.	Other employees.
Allegheny,	. . .	. . .	. .	$2 33	$0 78	$1 79	$2 75	$1 56	$2 32	240	. . . . .	. . .	. . .	$559 20	$187 20	$429 60	$669 00	$374 40	$556 80
Beaver,	. .	. .	$2 00	. . .	68	1 91	1 50	1 25	1 86	285	. .	. .	$570 00	. . . .	193 80	544 35	427 50	356 25	530 10
Philadelphia,	$4 00	$2 00	1 50	. . .	48	1 44	2 50	1 25	2 00	271	$1,084 00	$542 00	406 50	. . . .	130 08	390 24	677 50	338 75	542 00

A TABLE *showing the average weekly and yearly earnings of employés in the* LUMBER *trade, compiled from operator's reports to the Bureau, for the year ended December 31, 1880.*

COUNTY.	AVERAGE WEEKLY EARNINGS.								Weeks in operation during the year.	AVERAGE EARNINGS FOR THE YEAR.							
	Foremen.	Sawyers.	Setters, edgers, and filers.	Engineers.	Laborers.	Boys.	Lath sawyers and bundlers.	Other employees.		Foremen.	Sawyers.	Setters, edgers, and filers.	Engineers.	Laborers.	Boys.	Lath sawyers and bundlers.	Other employees.
Allegheny,	$15 15	$11 53	$11 75	$10 46	$8 59	$5 18	. . .	$12 18	41	$621 15	$472 73	$481 75	$428 86	$352 19	$2 2 38	. . . .	$499 38
Armstrong,	10 87	10 49	8 00	7 99	6 92	4 33	7 50	10 00	27	293 49	280 80	216 00	213 30	186 84	116 91	$232 50	270 00
Bedford,	10 50	. . .	. . .	9 00	10 50	6 00	. . .		49	514 50	. . .	. . . . .	441 00	5 4 50	204 00		
Blair,	16 65	10 50	. .	10 50	7 00	4 12	. . . .	9 70	49	815 85	514 50	. . . .	514 50	343 00	201 88	. . . . .	475 30
Bradford,	. .	12 54	9 66	11 04	9 66	. .	. .		25	. . . . .	3 3 50	241 50	276 00	241 50			
Cambria,	13 00	11 91	8 02	8 47	7 04	4 32	8 67	8 00	36	468 00	428 76	288 72	304 92	253 44	155 52	312 12	288 00
Cameron,	11 25	21 00	11 25	12 00	9 00	7 50	. . . .	9 00	25	281 25	525 00	281 25	300 00	225 00	187 50	. . . .	225 00
Carbon,	12 75	9 60	9 00	9 60	9 00	6 00	9 00	. . . .	24	3 6 00	240 40	216 00	230 40	2 6 00	144 00	216 00	
Centre,	14 00	16 60	9 60	12 75	8 14	4 67	8 37	9 00	32	448 00	531 20	307 20	408 00	260 48	149 44	267 84	288 00
Clarion,	24 00	12 00	9 00	9 60	7 40	4 50	6 00	7 50	35	840 00	420 00	315 00	315 00	2 9 00	157 50	210 00	262 50
Clearfield,	18 00	14 25	14 25	12 33	9 50	6 15	12 75	12 18	37	666 00	527 25	527 25	458 06	351 50	227 55	471 75	450 66
Clinton,	15 19	11 00	11 77	14 77	8 25	6 00	12 50	9 52	26	394 94	286 00	306 02	384 02	214 50	156 00	325 00	247 52
Crawford,	13 00	10 86	8 10	8 92	6 67	3 83	12 00	14 00	30	390 00	325 80	243 00	267 60	200 10	114 00	360 00	420 00
Cumberland,	12 00	7 50	. .	7 50	6 00	3 00	. . . .	. . . .	48	576 00	360 00	. . . .	360 00	288 00	144 00		
Dauphin,	13 50	12 00	6 00	9 00	6 00	3 00	9 00	9 00	38	513 00	456 00	228 00	342 00	228 00	114 00	342 00	342 00
Elk,	12 00	12 00	10 00	10 00	9 00	. .	. . . .	. .	42	504 00	504 00	420 00	420 00	378 00			
Fayette,	. .	. .	. .	. . . .	8 25	4 50	. . .	10 50	44	. . . . .	. . . .	. . . .	. . . . .	363 00	198 00	. . . . .	462 00
Forest,	. .	17 00	9 00	9 00	8 10	. . .	. . . .	11 10	33	. . . .	561 00	297 00	297 00	267 30	. . . . .	. . . . .	366 30
Indiana,	10 30	9 00	. . . .	9 75	. . . .	5 00	. . . .	9 00	50	515 00	450 00	. . . . .	487 50	. . . .	250 00	. . . .	450 00
Lackawanna,	8 08	9 75	. . . .	9 00	6 90	3 00	7 25	12 00	33	266 64	321 75	. . . . .	297 00	227 70	99 00	239 25	396 00
Luzerne,	14 65	9 00		9 00	8 40	4 50	6 60	12 00	39	571 35	351 00	. . . .	351 00	327 60	175 50	231 00	468 00
Lycoming,	19 85	10 93	14 90	15 57	8 25	3 83	10 74	10 83	28	555 80	306 04	417 20	435 96	231 00	108 08	300 72	303 24
Mifflin,	12 00	9 00	. . .	4 00	. .	2 50	.	. .	40	480 00	360 00	. .	160 00	. .	100 00	. . .	. . . .
Monroe,	19 23	12 00	7 14	12 60	8 16	4 95	8 25	8 25	41	846 12	528 00	314 16	554 40	359 04	247 80	363 00	363 00
Northumberland,	14 50	15 50	11 00	10 00	7 75	4 75	. . .	8 00	38	551 00	589 00	418 00	380 00	294 50	180 50	. . . . .	304 00
Potter,	10 50	9 75	10 50	10 50	7 00	3 60	. . . .	8 25	21	220 50	204 75	220 50	220 50	147 00	75 60	. . . . .	173 25
Snyder,	6 00	12 00	. .	6 00	6 00	3 00	. . . .	. .	34	204 00	408 00	. .	204 00	204 00	102 00		
Sullivan,	12 00	12 37	9 00	8 25	7 25	4 50	7 50	6 00	37	444 00	457 69	333 00	305 25	268 25	166 50	277 50	222 00
Warren,	12 83	12 03	8 80	8 16	7 12	2 83	7 14	6 82	29	372 07	348 87	255 20	236 64	206 48	82 07	207 06	197 78
Washington,	. .	12 00	7 50	7 50	. . .	. . . .	. .	7 50	35	. . .	420 00	262 50	262 50	. . . .	. . . .	. . .	262 50
York,	13 50	8 10	6 00	13 20	6 00	. . . .	6 88	. .	32	432 00	259 20	192 00	422 40	192 00	. . . . .	220 16	

A TABLE *showing the average daily and yearly earnings of employés of* CARRIAGE AND WAGON WORKS, *compiled from operators' reports to the Bureau, for the year ended December 31, 1880.*

COUNTY.	AVERAGE DAILY EARNINGS.									Number of days in operation during the year.	AVERAGE EARNINGS FOR THE YEAR.								
	Wood-workers.	Blacksmiths.	Blacksmiths' helpers.	Wheel-makers.	Painters.	Trimmers.	Laborers.	Other employees.	Boys.		Wood-workers.	Blacksmiths.	Blacksmiths' helpers.	Wheel-makers.	Painters.	Trimmers.	Laborers.	Other employees.	Boys.
Allegheny,	$1 95	$2 07	$1 30	$2 00	$2 00	$2 21	. . .	. .	$0 75	305	$594 75	$631 35	$396 50	$610 00	$610 00	$674 05	. . .	. . .	$223 75
Bedford,	1 25	1 25	. . .	. . .	1 25	. . .	. . .	. . .	. . .	304	380 00	380 00	. . .	. . .	380 00	. . .	. . .	. . .	. . .
Blair,	1 75	1 67	1 00	. . .	1 50	2 50	. . .	$1 50	. . .	308	539 00	514 36	308 00	. . .	462 00	770 00	. . .	$462 00	. . .
Chester,	1 46	. . .	. . .	. . .	. . .	. . .	. . .	1 46	. . .	297	433 62	. . .	. . .	. . .	. . .	. . .	. . .	433 62	. . .
Clinton,	1 37	1 50	60	. . .	1 25	. . .	. . .	. . .	. . .	214	293 18	321 00	128 40	. . .	267 50	. . .	. . .	. . .	. . .
Columbia,	1 35	1 35	. . .	. . .	1 35	1 35	. . .	. . .	. . .	308	415 80	415 80	. . .	. . .	415 80	415 80	. . .	. . .	. . .
Cumberland,	1 75	1 67	77	2 00	1 53	1 77	$1 10	1 35	45	255	446 25	425 85	196 35	510 00	402 90	451 35	$280 50	344 25	114 75
Dauphin,	1 75	1 83	1 08	1 62	1 75	1 67	. . .	2 00	. . .	275	481 25	503 25	297 00	445 50	481 25	459 25	. . .	550 00	. . .
Erie,	1 65	. . .	. . .	. . .	. . .	. . .	. . .	1 38	. . .	300	495 00	. . .	. . .	. . .	. . .	. . .	. . .	414 00	. . .
Fayette,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	1 12	. . .	300	. . .	. . .	. . .	. . .	. . .	. . .	. . .	336 00	. . .
Monroe,	1 37	. . .	. . .	. . .	. . .	. . .	1 00	1 00	. . .	288	394 56	. . .	. . .	. . .	. . .	. . .	288 00	288 00	. . .
Northampton,	1 66	2 00	1 00	. . .	1 50	. . .	. . .	. . .	. . .	308	511 28	616 00	308 00	. . .	462 00	. . .	. . .	. . .	. . .
Philadelphia,	2 36	3 39	1 41	2 55	3 38	2 47	1 50	2 80	64	308	726 88	1,044 12	434 28	785 40	1,041 04	750 76	462 00	862 49	197 12
Pike,	1 66	. . .	. . .	. . .	. . .	. . .	. . .	1 12	. . .	300	498 00	. . .	. . .	. . .	. . .	. . .	. . .	336 00	. . .
Schuylkill,	1 50	1 75	50	. . .	2 00	. . .	. . .	. . .	. . .	250	375 00	437 50	125 00	. . .	500 00	. . .	. . .	. . .	. . .
Union,	1 81	2 10	57	3 00	1 44	2 59	1 00	. . .	. . .	289	523 09	606 90	164 73	867 00	416 16	722 50	289 00	. . .	. . .

A TABLE *showing the average daily and yearly earnings of employés of* TANNERIES, *compiled from operators' reports to the Bureau for the year ended December 31, 1880.*

COUNTY.	AVERAGE DAILY EARNINGS.							Number of days in operation.	AVERAGE EARNINGS FOR THE YEAR.						
	Tanners.	Beam hands.	Yard hands.	Rollers and spongers.	Bark grinders.	Laborers.	Other employees.		Tanners.	Beam hands.	Yard hands.	Rollers and spongers.	Bark grinders.	Laborers.	Other employes.
Allegheny,		$2 00	$1 53	$2 00	$1 21	$1 14	$2 16	266		$532 00	$420 28	$532 00	$321 86	$303 04	$574 56
Armstrong,	$1 50	2 00					2 12	308	$462 00	6 6 00					652 96
Bedford,	1 75	1 33	1 22	1 33	1 17	1 25	1 27	366	535 50	4 6 98	373 32	400 98	358 02	382 50	388 62
Berks,	1 25	1 25				1 00	1 50	3 0	387 50	387 50				3 0 00	465 00
Blair,	1 17	1 33	1 22	1 37	92	1 08		3.6	358 02	4.6 98	373 32	419 22	281 52	339 48	
Bradford,	1 50	1 50	1 37	1 37	1 25		1 50								
Bucks,	1 33						1 58	279	371 07						440 82
Cambria,	1 50		1 00					313	469 50		313 00				
Cameron,		1 40	2 32	1 22	1 17	1 23		3 3		438 20	726 16	381 86	366 21	384 99	
Centre,		1 50	1 25	1 30	1 50	1 00	1 42	313		469 50	391 25	3 6 90	469 50	313 00	444 26
Clearfield,	2 50	1 50	1 40	1 40	1 40	1 25		300	750 00	450 00	420 00	420 00	420 00	375 00	
Clinton,	3 00	1 25	1 50	1 50	1 50	1 08	1 45	240	720 00	3 0 00	360 00	360 00	360 00	259 20	348 00
Columbia,	1 50	1 25	1 12		1 00	1 00		300	450 00	375 00	336 00		300 00	300 00	
Crawford,	1 53						1 75	311	475 83						541 25
Cumberland,	1 47	1 25	1 12	1 25	1 00	1 00	1 50	313	460 11	391 25	360 56	391 25	3 3 00	313 00	469 50
Elk,	1 15	1 30	1 25	1 25	1 00	1 00		310	357 65	4 4 30	388 75	388 75	311 00	3 1 00	
Erie,	2 00	1 46	1 19	1 62	1 00	1 08	1 60	303	606 00	442 38	360 57	490 86	3 3 00	327 24	484 80
Forest,	2 75	1 50	1 37	1 32	1 21	1 21		3.3	8 0 75	469 50	4 8 81	4 3 16	378 73	378 73	
Franklin,	1 00	1 00	1 00	1 00	75	1 00		3 6	3 6 00	306 00	3.6 00	306 00	229 50	306 00	
Greene,	1 50							200	300 00						
Huntingdon,		1 52	1 16		1 30	1 10	1 53	311		472 72	360 76		404 30	342 10	473 83
Lackawanna,	3 53	1 36	1 16	1 14	1 00	1 02	2 30	303	1,069 59	412 08	351 48	345 42	3 3 00	3 9 06	696 90
Lancaster,	1 50	1 50	1 06		75	1 00	1 33	276	430 56	414 00	292 56		207 00	276 00	367 08
Lebanon,	1 00	1 50	1 00		68	90	75	228	228 00	342 00	228 00		155 04	205 20	171 00
Lehigh,	1 07	1 38	1 41	1 29	1 11	97	1 26	311	332 77	429 18	438 51	401 19	345 21	301 67	391 86
Lycoming,	1 20							3 8	369 60						
Mifflin,	1 00							260	260 00						
Monroe,	1 50	1 30	1 24	1 25	1 08	1 07	1 59	318	477 00	413 40	394 32	397 50	3 3 44	340 26	477 00
Montgomery,	1 12						2 00	300	336 00						600 00
Montour,	1 00						1 50	3 0	300 00						450 00
Perry,	1 95	1 40	1 30	1 37	1 12	1 07	1 55	306	595 70	428 40	397 80	419 22	342 72	327 42	474 30

TANNERIES—*Continued.*

COUNTY.	AVERAGE DAILY EARNIGNS.							Number of days in operation.	AVERAGE EARNIGNS FOR THE YEAR.						
	Tanners.	Beam hands.	Yard hands.	Rollers and spongers.	Bark grinders.	Laborers.	Other employees.		Tanners.	Beam hands.	Yard hands.	Rollers and spongers.	Bark grinders.	Laborers.	Other employees.
Philadelphia,	$1 50	$1 77	$1 41	$1 50	$1 39	$1 12	$2 00	307	$460 50	$543 39	$432 87	$460 50	$423 73	$343 84	$614 00
Potter,	2 00	1 35	1 20	1 25	1 12	1 12	. . .	300	600 00	405 00	360 00	375 00	336 00	336 00	
Schuylkill,	1 25	1 25	1 15	1 50	1 00	. . . . .	1 38	307	383 75	383 75	353 05	460 50	307 00	. . . . .	423 66
Snyder,	1 00	. . .	. .	. . . . .	50	. . . . .	. . . . .	300	300 00	. . . .	. .	. . .	150 00		
Susquehanna,	1 62	1 21	1 07	1 25	1 12	1 06	2 00	302	489 24	365 42	323 14	377 50	338 24	320 12	604 00
Tioga,	1 95	1 47	1 17	1 49	1 06	1 09	1 51	302	588 90	443 94	353 34	449 98	320 12	329 18	456 02
Washington,	1 25	1 90	. . .	. . .	. .	1 50	1 25	302	616 08	456 02	407 70	431 86	359 38	347 30	453 00
Wayne,	1 75	1 37	1 00	1 12	97	97	1 00	304	380 00	577 60	. . .	. . .	. . . . .	456 00	384 00
Westmoreland,	. . . . .	1 33	. . .	. . .	. . .	. . . . .	. . . . .	275	481 25	376 75	275 00	308 00	266 75	266 75	275 00
Wyoming,	2 50	1 25	1 00	1 25	1 00	1 00	1 12	303	. . . . .	416 29					
York,	1 58	1 21	1 05	1 05	80	. . . . .	1 00	304	760 00	380 00	304 00	308 00	304 00	304 00	340 48
								306	453 48	370 26	311 30	311 30	244 80	. . . . .	306 00

A TABLE *showing the average daily and yearly earnings of employés of* MISCELLANEOUS INDUSTRIES, *compiled from operator's reports to the Bureau, for the year ending December 31, 1880:*

COUNTY.	AVERAGE DAILY EARNINGS.				Number of days in operation.	AVERAGE EARNINGS FOR THE YEAR			
	Foreman.	Skilled workmen.	Unskilled workmen.	Boys.		Foreman.	Skilled workmen.	Unskilled workmen.	Boys.
Allegheny,	$3 41	$2 06	$1 39	$0 74	289	$985 49	$595 34	$401 71	$213 86
Armstrong,	. .	2 50	1 00		200		500 00	200 00	. .
Beaver,	2 10	1 80	1 25	69	283	594 30	509 40	353 75	195 27
Berks,	5 00	1 99	1 09	50	175	1,375 00	547 25	299 75	137 50
Blair,	. . . .	1 94	1 25	75	245	. . . . .	475 30	306 25	183 75
Bradford,	. . . .	1 84	1 06	. . . .	253	.	465 52	268 18	. . . . .
Butler,	2 37	. .	1 37	. . .	300	711 00	. .	411 00	. . . .
Cambria,	3 00	2 00	1 07	50	175	525 00	350 00	187 25	87 50
Carbon,	2 00	1 59	1 09	1 00	247	494 00	392 73	269 23	247 00
Centre,	3 00	2 67	1 32	85	300	900 00	621 00	396 00	255 00
Chester,	2 00	1 80	1 16	50	300	600 00	540 00	348 00	150 00
Clearfield,	. . . .	1 58	1 10	55	305		481 90	335 50	167 75
Columbia,	2 58	1 75	1 19	65	230	593 40	402 50	273 70	149 50
Crawford,	. . .	1 45	1 16	67	187	.	271 15	216 92	125 29
Cumberland,	2 20	1 37	98	56	286	629 20	391 82	280 28	160 16
Dauphin,	2 50	1 71	1 11	. . .	230	575 00	393 30	255 30	. . . . .
Delaware,		2 13	1 62	. . . .	311	. . . . .	662 43	503 82	. . . . .
Elk,	. . . .	1 80	. . . .	. . . .	3 0	. .	540 00	. . .	. . . .
Erie,	2 50	1 82	1 21	58	270	675 00	491 40	326 70	156 60
Fayette,	. . . .	1 48	1 25	70	201	.	297 28	251 25	140 70
Franklin,	. . . .	1 75	1 08	65	293	. . . . .	512 75	316 44	190 45
Huntingdon,	. .	2 75	. . . .	50	308	. . . .	847 00	. . . .	154 00
Indiana,	. . . .	1 38	1 00	50	281	.	387 78	281 00	140 50
Lackwanna,	2 37	1 73	1 41	50	260	616 20	449 80	366 60	130 00
Lancaster,	1 62	1 53	1 12	61	306	495 72	468 18	242 72	186 66
Lawrence,	. . .	3 00	. .	. . .	275		825 00	. . .	. .
Lehigh,	1 62	1 59	99	54	288	466 56	457 92	285 12	155 52
Luzerne,	.	1 76	1 21	. .	270	.	492 80	338 80	. . .
Lycoming,	2 37	1 60	1 09	48	240	468 80	384 00	261 60	115 20
Montgomery,	.	1 80	1 17	. .	265	.	477 00	3 0 05	. .
Northampton,	2 21	1 66	1 05	80	270	596 71	448 20	283 50	216 00
Northumberland,	. .	1 57	1 10	50	301	.	472 57	331 10	150 50
Philadelphia,	3 21	2 18	1 38	66	292	937 32	636 56	402 96	192 72
Pike,	2 93	2 14	1 50	79	309	904 61	661 26	463 50	244 11
Schuylkill,	2 71	1 77	1 14	53	285	772 35	504 45	324 90	151 05
Somerset,	. . . .	1 34	1 12	. . . .	235	. . . .	314 90	263 20	. . . . .
Susquehanna,	. . . .	1 50	1 04	. .	280	. . . . .	420 00	391 20	. . .
Warren,	2 40	1 73	1 25	84	260	624 00	449 80	325 00	218 40
York,	. . . .	1 84	1 20	. . . .	285	. . . . .	524 40	342 00	. . . . .

A TABLE *showing the average daily and yearly earnings of employés in* *as reported to this office, for*

COUNTY.	AVERAGE DAILY EARNINGS.											Average number of days in operation during the year.
	Overseers.	Skilled workmen.	Unskilled workmen.	Boys under 16 years.	Women, and girls over 15 years.	Girls under 15 years.	Engineers.	Blacksmiths.	Carpenters.	Laborers.	Other employees.	
Armstrong, (woolens, etc.,)	$2 00	$1 50	$1 25	$0 50	$0 90	$0 70	$1 25	$1 75	$1 75	. . .	. . .	196
Armstrong, (yarns,)	1 00	1 00	25	25	1 00	. . .	. . .	. . .	. . .	. . .	. . .	103
Beaver, (woolens, etc.,)	. . .	2 00	1 25	. . .	50	. . .	. . .	. . .	. . .	. . .	. . .	300
Bedford, (cotton and woolen,)	. . .	1 00	75	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	308
Bedford, (woolens, etc.,)	2 50	2 00	82	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	280
Berks, (cotton and woolen,)	2 19	1 43	1 15	45	90	52	1 82	. . .	1 10	. .	2 21	301
Berks, (wool hats,)	. . .	1 32	. . .	57	67	32	1 57	. . .	. . .	1 05	1 50	268
Bradford, (woolens, &c.,)	.	2 50	. . .	. . .	1 50	. . .	. . .	. . .	. . .	. . .	. . .	249
Bucks, (cotton and woolen,)	3 50	2 50	1 25	85	1 12	. . .	2 50	. . .	2 00	1 25	2 00	300
Bucks, (hosiery and knit goods,)	2 75	2 00	1 00	59	75	45	2 00	. . .	1 75	1 00	3 00	296
Bucks, (yarns,)	2 75	2 20	1 06	69	79	50	1 67	. . .	2 00	1 31	. . .	304
Chester, (cotton and woolen,)	2 50	2 10	1 13	42	1 35	50	1 50	. . .	. . .	1 14	. . .	310
Chester, (yarns.)	2 67	2 16	. . .	1 28	1 12	94	2 25	2 25	. . .	. . .	. . .	108
Clinton, (cotton and woolen,)	. . .	1 25	. . .	.	. . .	. . .	. . .	. . .	. . .	. . .	. . .	154
Columbia, (woolens, etc ,)	1 40	1 25	75	33	40	. . .	. . .	. . .	. . .	. . .	. . .	224
Dauphin, (cotton & cotton goods)	2 30	. .	. . .	. .	60	.	2 50	1 33	2 00	1 00	1 80	208
Delaware, (cotton & cot. goods,)	2 46	2 08	1 06	57	1 01	51	2 18	2 11	2 01	1 24	1 57	263
Delaware, (cotton and woolen,)	3 58	1 99	1 23	59	1 05	55	1 99	2 18	2 05	1 35	1 26	306
Delaware, (hosiery & knit goods)	1 75	. .	1 00	50	80	50	1 70	. . .	. . .	. . .	1 00	296
Delaware, (woolens, etc.,)	2 22	1 79	1 27	75	1 17	77	1 67	1 67	1 83	1 38	2 50	299
Delaware, (yarns,)	3 16	1 97	1 14	54	96	48	2 12	. . .	. . .	1 08	1 50	320
Franklin, (cotton and woolen,)	.	. .	1 00	50	. . .	. . .	. . .	. . .	. . .	. . .	. . .	300
Fulton, (woolens, etc.,)	1 50	1 50	. . .	. . .	. . .	. . .	. . .	. .	. . .	. . .	. . .	200
Indiana, (woolens, etc.,)	. . .	1 50	1 00	50	67	50	1 50	. . .	. . .	. . .	. . .	240
Lackawanna, (woolens, etc.,)	. .	1 23	90	. .	90	. . .	1 00	. . .	. . .	. . .	. . .	250
Lancaster, (cotton & cot. goods,)	2 25	1 50	1 00	52	81	42	2 00	1 25	2 00	1 15	3 38	305
Luzerne, (hosiery & knit goods,)	2 50	.	1 00	50	. . .	. . .	. . .	. . .	. . .	. . .	. . .	300
Luzerne, (yarns,)	. .	1 25	80	. .	75	. . .	. . .	. . .	. . .	. . .	. . .	60
Lycoming, (woolens, etc.,)	2 00	1 27	82	42	60	45	1 00	. . .	. . .	1 00	. . .	250
Montgomery, (cotton and cotton goods,)	2 25	1 82	1 09	44	80	38	1 67	. . .	1 62	81	1 14	267
Montgomery, (cotton & woolen,)	3 00	2 34	1 35	72	1 13	50	2 35	. . .	1 75	. . .	1 63	303
Montgomery, (yarns,)	3 58	2 08	1 25	62	88	50	2 00	. . .	. . .	. . .	2 08	299
Philadelphia, (carpets & yarns,)	3 13	1 86	1 19	64	89	63	2 55	.	2 05	. . .	1 71	297
(cotton and cotton goods,)	2 75	2 03	1 05	72	1 13	61	2 17	2 00	2 19	1 29	1 60	298
(cotton and woolen,)	2 97	2 07	1 29	65	1 15	59	2 18	2 12	1 82	1 15	2 30	299
(hosiery and knit goods,)	3 34	2 06	1 44	62	1 12	51	2 01	2 50	2 25	1 70	1 75	231
(silk and silk mixed goods,)	3 08	2 20	1 02	60	1 00	51	2 02	. . .	2 00	1 50	2 43	292
(woolens, etc.,)	4 00	2 02	1 30	55	90	48	2 41	. . .	2 25	1 00	1 23	284
(yarns,)	2 92	2 09	1 26	71	92	58	2 22	2 50	1 93	1 35	1 67	294
Sullivan, (woolens, etc.,)	1 50	1 50	1 00	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	160
Union, (cotton and woolen,)	2 50	1 57	76	. . .	75	. .	2 00	. . .	. . .	. . .	. . .	286

the manufacture of TEXTILE FABRICS *in the various counties of the State, the year ended December 31, 1880.*

AVERAGE EARNINGS FOR THE YEAR.											COUNTY.
Overseers.	Skilled workmen.	Unskilled workmen.	Boys under 16 years.	Women, and girls over 15 years.	Girls under 15 years.	Engineers.	Blacksmiths.	Carpenters.	Laborers.	Other employees.	
$392 00	$294 00	$215 00	$98 00	$176 40	$137 20	$245 00	$343 00	$343 00	. . . .	. . . .	Armstrong.
103 00	103 00	25 75	25 75	103 00	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	Armstrong.
. . . .	600 00	375 00	. . .	150 00	. . . .	. . . .	. . . .	. .	. . . .	. . . .	Beaver.
. . . .	308 00	231 00	. . .	. .	. . .	. . . .	. . . .	. .	. . . .	. . . .	Bedford.
700 00	560 00	229 60	. . . .	. . . .	. . . .	. .	. . . .	. . . .	. . . .	. .	Bedford.
659 19	430 43	346 15	135 45	270 90	156 52	547 82	. . .	331 10	. . .	$665 21	Berks.
. . . .	353 76	. . .	152 76	179 56	85 76	420 76	. . . .	.	281 40	$402 00	Berks.
. .	600 00	. . . .	. . . .	360 00	. . . .	. .	. . . .	. . . .	. .	. .	Bradford.
1,050 00	750 00	375 00	255 00	336 00	.	750 00	. . . .	600 00	375 00	600 00	Bucks.
814 00	592 00	296 00	148 00	222 00	133 20	592 00	. . . .	518 00	296 00	888 00	Bucks.
836 00	668 80	322 24	209 76	240 16	152 00	507 68	. . . .	608 00	398 24	. .	Bucks.
775 00	651 00	350 30	130 20	4 8 50	155 00	465 00	. . . .	. . . .	353 40	. . . .	Chester.
288 36	233 28	. . . .	138 24	120 96	101 52	243 00	243 00	. . . .	. . .	. . . .	Chester.
. . . .	192 50	. . . .	. . . .	.	. . . .	. . . .	. . . .	. . . .	. . .	. . . .	Clinton.
313 60	280 00	168 00	73 92	89 60	. . .	. . . .	.	. .	. .	. .	Colnmbia.
478 40	. .	. .	. .	124 80	. . . .	527 00	276 64	416 00	208 00	374 40	Dauphin.
659 28	557 44	284 08	152 76	270 68	136 68	584 24	565 48	538 68	332 32	420 76	Delaware.
1,095 48	608 94	376 33	180 54	321 30	168 30	608 94	667 08	627 30	413 10	385 55	do.
518 00	. . . .	296 00	148 00	236 80	148 00	503 20	.	. .	. . . .	296 00	do.
663 78	535 21	379 73	224 25	349 83	230 23	499 33	499 33	562 12	412 62	747 59	do.
1,011 20	630 40	364 80	172 80	307 20	153 60	678 40	. .	. . . .	345 60	480 00	do.
. . . .	.	330 00	150 00	. . .	. . .	. . . .	. . . .	.	.	. . . .	Franklin.
300 00	300 00	. . . .	. .	. . .	.	.	. . .	. . . .	. . . .	. . . .	Fulton.
. . . .	360 00	240 00	120 00	160 80	120 00	360 00	. . . .	. . .	. . . .	. . . .	Indiana.
. . . .	307 50	225 00	. . . .	225 00	.	250 00	. . . .	. .	.	. .	Lackawanna.
686 25	457 50	305 00	158 60	247 05	128 10	610 00	381 25	610 00	350 75	1,030 90	Lancaster.
750 00	. . . .	300 00	150 00	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	Luzerne.
	75 00	48 00	. . . .	45 00	. . .	. . . .	. . . .	. . . .	. . . .	. . . .	Luzerne.
500 00	317 50	205 00	105 00	150 00	112 50	250 00	. . . .	. . . .	250 00	. . . .	Lycoming.
600 75	485 94	291 03	117 48	213 60	101 46	445 89	. . . .	432 54	216 27	304 38	Montgomery.
909 00	709 02	409 05	218 16	342 39	151 50	712 05	. .	530 25	. . .	493 89	Montgomery.
1,070 42	621 92	373 75	185 38	263 12	149 50	598 00	. . . .	. . .	. . . .	621 92	Montgomery.
929 61	552 42	353 43	190 08	264 33	187 11	757 35	. .	608 85	.	5 7 87	Philadelphia.
819 50	694 94	312 90	214 56	336 74	181 78	646 66	596 00	652 62	384 42	476 80	do.
888 03	618 93	385 71	194 35	343 85	176 41	651 82	633 88	544 18	3 3 85	687 70	do.
938 54	578 86	404 64	174 22	314 72	143 31	564 84	702 50	632 25	477 70	491 75	do.
899 36	642 40	297 84	175 20	292 00	148 92	589 84	. . . .	584 00	438 00	709 53	do.
1,136 00	573 68	369 20	156 20	255 60	136 32	6 4 44	. . . .	639 00	284 00	363 52	do.
858 48	614 46	370 44	208 74	270 48	170 52	652 68	735 00	567 42	396 90	490 98	do.
240 00	240 00	160 00	. . . .	.	. . . .	. .	. . . .	. .	. . . .	. . . .	Sullivan.
715 00	449 02	247 36	. . . .	214 50	. . . .	572 00	. . . .	. . . .	. . . .	. . . .	Union.

A TABLE *showing the monthly wages of* RAILROAD EMPLOYEES—CONDUCTING TRANSPORTATION—*compiled from reports to the Bureau, for the year ended December 31, 1880.*

NAME OF RAILROAD.	Clerks.	Chief telegraph operator.	Telegraph operators.	Passenger & freight agents.	Depot masters.	General dispatcher & train master.	Train dispatchers.	Conductors, passenger.	Conductors, freight.	Brakemen, passenger.	Brakemen, freight.	Janitor.	Watchmen.	Baggage masters.	Switch tenders.	Baggage porters.
Barclay,	$60 00	$70 00	$36 00	$36 00	$50 00	....	....	$78 00	$65 00	$39 00	$39 00					
Bell's Gap,	45 00	....	....	10 00	....	....	....	*a*2 00	....	*a*1 00						
Catasauqua and Fogelsville,	52 00	....	....	15 00												
Cornwall,	80 00			15 00	....	....	....	62 00	*a*1 55	*a*1 50	....	....	*a*1 00	*a*1 63		
Cumberland Valley and branches,	....	....	....	52 00	....	....	....	....	45 00	....	*a*1 25					
Delaware and Hudson Canal Company,	60 00	....	45 00	40 00	....	....	$100 00	81 00	71 00	52 00	45 00	....	30 00	60 00	45 00	
Delaware Western,	31 46	....	28 18	39 78	56 68	$72 80	83 33	75 00	62 36	46 80	44 46	....	....	....	27 04	37 37
Dunkirk, Allegheny Valley and Pittsburgh,	55 83	....	30 00	50 00	....	....	....	75 00	50 00	42 50	39 00	....	37 50	....	35 00	
East Broad Top and Coal Company,	55 65	54 00	45 00	52 31	....	75 00	54 00	90 00	75 00	40 50	45 00	$8 00	35 00	54 00	45 00	
Evergreen,	32 50	....	25 39	25 39	....	....	....	*a*2 07	*a*1 73	*a*1 25	*a*1 25					
Greenlick Narrow Gauge,	55 00									*a*1 35						
Hanover Junction, Hanover and Gettysburg,	....	....	....	....	....	....	....	68 00	....	....	....	....	35 00			
Harrisburg and Potomac,	....	....	....	....	....	....	....	....	....	....	35 00					
Ironton,	25 00	20 00	....	20 00	27 50	30 00	30 00	57 50	52 50	38 00	38 00	13 00				
Ligonier Valley,	....	....	....	....	....	....	....	44 00	....	27 50	....	....	15 00			
Little Saw Mill Run,	50 00	....	....	....	....	....	....	....	....	....	38 00	....	27 00			
Monongahela Inclined Plane,	15 00	....	....	....	....	....	....	40 00	....	30 00	....	....	*a*1 20			
Montrose,	50 00	....	....	....	....	....	....	....	....	....	*a*1 75					
New York, Lake Erie and Western, Susquehanna division,	....	....	....	15 00	....	....	....	66 00	....	....						
New York, Lake Erie and Western, Delaware division; the Hawley Branch, (leased;) the Jefferson Branch, (leased,)	....	....	....	41 66	....	....	....	90 00	....	*a*1 50						
Buffalo, Bradford and Pittsburgh, (leased,)	51 00	....	54 00	83 00	....	....	38 25	....	....	....	....	50 22	....	40 50	55 95	
New York, Pennsylvania and Ohio and branches,	43 87	....	37 40	....	47 56	90 00	97 50	90 00	70 20	46 80	46 80	....	....	32 37	42 45	
Northern Central and branches,	48 00	....	40 00	59 00	81 00	125 00	....	96 00	68 00	54 00	54 00	....	33 75	40 00	48 00	
Olean, Bradford and Warren,	53 00	....	45 00	62 43	....	....	110 00	97 00	69 55	50 00	45 50	45 00	26 00	40 00	57 50	
	53 16	102 50	39 06	47 25	90 00	119 10	70 17	77 51	66 66	35 26	43 45	31 67	36 20	43 72	40 32	37 13
	50 00	....	40 00	50 00	....	....	70 00	70 00	65 00	45 00	45 00	....	....	40 00		

Peach Bottom,	40 00	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	35 00	60 00	50 00	25 00	25 00	b12 00	. . . .	40 00					
Pennsylvania Co.,—Pittsburgh, Fort Wayne and Chicago Railway and branches,	65 00	105 00	31 10	53 80	100 00	125 00	87 50	83 20	69 00	40 00	44 00	39 00	40 00	54 00	45 00					
Pennsylvania Co.,—Chartiers Railway,	45 00	. . . .	45 00	23 45	. . . .	125 00	. . . .	a2 90	a2 72	a1 45	a1 70	. . . .	. . . .	a1 40						
Pennsylvania Co.,—Pittsburgh, Cincinnati and St. Louis,	47 13	63 00	45 84	31 00	. . . .	118 75	92 45	75 00	a2 62	a1 80	a1 80	b16 00	36 50	a1 70	a1 85	40 65				
People's,	. . . .	. . . .	47 25	37 80	. . . .	. . . .	. . . .	. . . .	54 60	. . . .	a1 60	. . . .	. . . .	43 33	. . . .					
Perkiomen,	44 00	46 78	34 02	27 36	. . . .	68 33	. . . .	78 00	. . . .	. . . .	. . . .	. . . .	24 00	. . . .						
Philadelphia and Baltimore Central,	40 00	. . . .	50 00	15 00	. . . .	60 00	105 00	75 00	46 64	48 83	42 41	. . . .	26 46	53 34						
Philadelphia, Wilmington and Baltimore,	55 50	. . . .	47 07	55 00	125 00	. . . .	80 00	a2 25	a2 50	a1 75	a1 50	. . . .	. . . .	a1 75						
Pittsburgh and Castle Shannon,	100 00	. . . .	. . . .	b18 33	. . . .	. . . .	112 50	a2 75	75 82	46 12	a1 60	. . . .	45 39	52 22	42 50	33 50				
Pittsburgh and Lake Erie,	43 63	. . . .	33 85	66 75	. . . .	. . . .	. . . .	61 85		48 18	46 52	. . . .	. . . .	53 98						
Pittsburgh Southern,	. . . .	. . . .	39 25	39 03	. . . .	125 00	83 35	84 14		30 00	35 00	. . . .	a1 35							
Pittsburgh, Titusville and Buffalo,	54 00	115 00	48 00	15 00	. . . .	. . . .	90 00	40 00	a2 80	a2 00	a1 50	20 00	38 66	a1 90	. . . .	45 00				
Pittsburgh and Western,	40 00	. . . .	. . . .	50 00	. . . .	. . . .	. . . .	50 00	. . . .	55 00	. . . .	30 00	. . . .	45 00						
Salisbury,	. . . .	. . . .	. . . .	34 54	. . . .	50 00	100 00	60 00	81 00	62 16	54 00	42 00	. . . .	23 39	37 50	32 40				
State Line and Sullivan,	. . . .	. . . .	. . . .	20 00	. . . .	. . . .	. . . .	75 00	75 00	75 00	45 00	45 00	. . . .	30 00	50 00					
Tioga and Elmira State Line,	90 00	50 00	40 00	20 00	. . . .	. . . .	. . . .	47 50	. . . .	37 50	. . . .	. . . .	. . . .	. . . .						
West Chester and Philadelphia,	40 00	. . . .	40 00	40 00	. . . .	. . . .	. . . .	75 00	. . . .	45 00	. . . .	. . . .	45 00	. . . .						
Western Maryland,	20 00	. . . .	20 00	25 00	. . . .	. . . .	83 33	75 00	a2 55	a1 75	a1 62	. . . .	a1 62	. . . .						
Wilmington and Northern,	83 33	. . . .	35 00	83 33	65 00	90 00	80 00	a2 25	70 00	a1 50	20 00	30 00	45 00	a1 75	40 00	30 00				
	48 00	. . . .	39 50	50 00	. . . .	. . . .	. . . .	a2 50												
				10 00	. . . .	. . . .	. . . .	a2 30	a2 75	a1 55	a1 75	. . . .	32 55	a1 95	25 00	25 00				
				90 00	. . . .	. . . .	. . . .	a2 90	a3 00	a1 75	a2 00		40 00		30 00	30 00				
				37 68	. . . .	. . . .	78 75	67 20	61 18	41 85	40 00	32 50	32 50							

a Daily wages. *b* Females. *c* Boys.

RAILROAD EMPLOYEES—CONDUCTING TRANSPORTATION—*Continued.*

NAME OF RAILROAD.	Policemen.	Gatemen and flagmen.	Attending ladies' room.	Cleaning rooms.	Cleaning depots.	Messengers.	Coopers.	Weighmasters.	Laborers.	Drivers.	Stable boss.	Hostlers.	Blacksmiths.	Blacksmith's helpers.	Warehousemen.	Cargo inspectors.	Linemen.	Other employees.
Barelay,	....	....	....	....	....	....	....	$40 00	$32 50	....	....	....	....	....	....	....	....	$50 00
									26 00									
Bell's Gap,	$10 00	....	....	....	....	....	....	30 00	....	....	....	$33 00	$a1 32					
													a2 00					
Catasauqua and Fogelsville,	....	....	....	....	....	....	....	a1 00	a1 10	....	....	....	a1 35					
Cornwall,	....	....	....	....	....	....	....	45 00	....	....	....	....	a1 65	$a1 00				
Cumberland Valley and branches,	....	....	....	....	....	$30 00	....	40 00	....	....	....	....	....	....	$35 00			
Delaware and Hudson Canal Co.,	....	$27 00	....	....	....	....	....	....	....	....	....	....	....	....	27 17			
Delaware Western,	....	....	....	....	$b4 00													
Dunkirk, Allegheny Valley & Pittsbg	30 00																	
East Broad Top and Coal Company,	....	....	....	....	....	....	....	....	a1 00									
Evergreen,	....	....	....	....	....	....	....	....	30 00									
Greenlick Narrow Guage,	....	....	....	....	....	....	....	....	....	....	....	....	40 00	....	....			
Hanover Junc., Hanover & Gettysb'g	....	....	....	....	....	....	....	....	....	....	....	....	....	....	27 50			
Ironton,	....	....	....	....	....	....	....	....	....	....	....	....	48 00					
Ligonier Valley,	....	....	....	....	....	....	....	....	a1 00	....	....	....	....	....	....	....	....	a1 15
New York, Lake Erie and Western, "Susquehanna Division,"	....	....	....	....	15 00	16 75	....	....	39 47	....	....	....	....	....	36 00			40 00
New York, Lake Erie and Western, Delaware Division; the Hawley branch, (leased,) the Jefferson, (leased,)	....	....	....	....	....	....	....	....	28 17	....	....	....	....	....	39 50	....	....	7 43
Buffalo, Bradford and Pittsburgh, (leased,)	25 00	33 75	....	....	....	....	....	....	33 75	....	....	....	....	....	50 00			
New York, Pennsylvania and Ohio and branches,	33 85	....	....	....	....	27 00	....	....	33 70	....	....	....	....	....	45 45			
Northern Central and branches,	40 67	31 24	$31 00	$22 67	36 00	19 45	$59 00	47 36	29 26	$37 72	$65 00	34 51	65 00	50 00	36 09	$50 41	$49 33	
Olean, Bradford and Warren,	50 00	....	....	....	....	....	....	....	....	....	....	....	....	....	40 00			
Peach Bottom,	....	....	....	....	....	....	....	....	....	....	....	....	35 00					
Pennsylvania Company—Pittsburgh, Fort Wayne and Chicago Railway and branches,	50 00	50 00	25 00	26 00	25 00	20 00	32 50	....	35 00	....	....	....	....	....	40 00			
Pennsylvania Company—Chartiers Railway,	95 00	....	....	....	....	....	....	....	....	....	....	....	....	....	28 60			

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A TABLE *showing the monthly wages of* RAILROAD EMPLOYEES—MAINTENANCE OF WAY—*compiled from reports to the Bureau for the year ended December 31, 1880.*

NAME OF RAILROAD.	Supervisors.	Assistant Supervisors.	Clerks.	Track Foremen.	Assistant Track Foremen.	Trackmen.	Pavers.	Station cleaners.	Watchmen.	Switchmen.	Station-keepers.	Conductors—"work trains."	Flagmen—"work trains."	Brakemen—"work trains."	Pumpers.
Barclay,	....	....	....	$40 00	....	$26 00									
Bell's Gap,	....	....	....	45 00	....	*a*1 10									
Catasauqua and Fogelsville,	....	....	....	58 00	....	*a*1 00									
						*a*1 15									
Cornwall,	....	....	....	60 00											
Cumberland Valley and branches,	....	....	....	37 50	....	28 00	....	....	$35 00						
Delaware and Hudson Canal Company,	....	....	....	42 12	....	28 85									
Delaware Western,	....	....	....	45 00	....	32 50									
Dunkirk, Allegheny Valley and Pittsburgh,	$90 00	....	....	45 00	....	29 40	....	....	....	....	....	....	....	....	$30 00
East Broad Top and Coal Company,	50 00	....	....	35 00	$26 00	....	....	....	30 00	....	....	....	....	....	20 00
															26 00
Evergreen,	....	....	....	....	....	40 00									
Greenlick Narrow Gauge,	....	....	....	....	....	35 00									
Hanover Junction, Hanover and Gettysburg,	....	....	....	40 00	....	26 00	....	..	....	....	....	$45 00	....	$30 00	
Harrisburg and Potomac,	38 50	....	....	31 20	....	23 40									
Ironton,	....	....	....	45 00	....	24 00									
Junction,	80 00	....	$50 00	45 00	....	30 00	....	....	....	$51 50					
Keystone Coal Company,	....	....	....	45 00	....	27 50	....	....	50 00						
Ligonier Valley,	....	....	....	*a*1 20	....	*a*1 00									
Little Saw Mill Run,	....	....	$83 33	*a*1 60	....	*a*1 25									
Montrose,	....	....	....	*a*1 35	....	*a*1 00									
New York, Lake Erie and Western, Susquehanna Division,	72 00	....	....	47 37	....	27 20	....	....	32 00						
New York, Lake Erie and Western, Delaware Division, the Hawley branch, (leased;) Jefferson, (leased,)	75 00	....	....	46 16	....	26 00	....	....	30 00						
Buffalo, Bradford and Pittsburgh, (leased,)	63 00	....	....	40 50	....	30 37	....	....	33 75						
New York, Pennsylvania and Ohio and branches,	96 66	....	....	45 00	....	29 90	....	....	....	....	....	....	....	....	50 00
Northern Central and branches,	85 67	$85 25	70 00	47 47	32 96	25 29	$32 24	$14 38	27 07	32 22	$16 67	68 56	$38 63	42 50	44 50
Olean, Bradford and Warren,	70 00	....	....	50 00	....	*a*1 25	....	....	30 00	45 00					
Peach Bottom,	....	....	....	33 80	....	22 00									
Pennsylvania Company—Pittsburgh, Fort Wayne and Chicago railway and branches,	138 70	90 00	100 00	44 00	....	28 60	....	....	34 00	....	....	80 00	28 60	28 60	50 00
Chartiers railway,	60 00	....	....	41 66	....	*a*1 10	....	....	*a*1 10	....	....	*a*2 70	*a*1 25	*a*1 25	
Pittsburgh, Cincinnati and St. Louis,	88 33	....	39 00	41 22	....	*a*1 10	....	....	30 20	....	....	*a*2 70	*a*1 25		
									*a*1 10	....	....	81 00			
People's,	....	....	....	....	....	60 00									
Perkiomen,	73 50	....	....	52 50	35 00	27 00	....	....	28 56	....	....	*c*63 00	....	*c*52 00	....

Philadelphia and Baltimore Central,	83 33	....	....	45 00	....	*a*1 00	....	....	....	28 00							
						*a*1 15											
Philadelphia, Wilmington and Baltimore,	64 87	....	65 00	39 91	....	31 73	43 00	....	45 00	40 26	....	80 00	....	40 67			
Pittsburgh and Castle Shannon,	...	...	....	*a*1 75	....	*a*1 25											
Pittsburgh and Lake Erie,	70 00	....	....	40 00	....	*a*1 14	....	....	*a*1 10	....	....	*a*2 00	*a*1 40	*a*1 40			
				50 00	....	....	....	....	35 00	....	....	*a*3 25					
Pittsburgh Southern,	50 00	..	....	35 00	....	*a*1 10											
Pittsburgh, Titusville and Buffalo,	75 00	60 00	....	40 00	....	26 00	....	....	29 00	38 00							
Pittsburgh and Western,	75 00	....	....	35 00	....	29 00	....	....	35 00								
Salisbury,	...	....	...	37 50	....	*a*1 25											
State Line and Sullivan,	80 00	....	...	40 00	....	32 00											
Tioga and Elmira State Line,	75 00	....	....	45 00	....	*a*1 00											
West Chester and Philadelphia,	83 33	37 50	....	50 00	....	*a*1 00	....	....	30 00								
						*a*1 15											
Western Maryland,	....	75 00	....	40 00	....	*a*1 05	....	....	30 00	....	...	....	....	....	50 00		
				50 00													
Wilmington and Northern,	85 00	35 00	....	33 00	....	30 00	....	....	35 50								

RAILROAD EMPLOYEES—MAINTENANCE OF WAY—*Continued.*

NAME OF RAILROAD.	Mail carriers.	Master carpenters.	Foremen carpenters.	Carpenters.	Foremen laborers.	Laborers.	Foremen masons.	Masons.	Foremen quarrymen.	Quarrymen.	Blacksmiths.	Blacksmiths' helpers.	Painters.	Telegraph repairmen.	Other employees.
Bell's Gap,	....	....	$50 00												
Cornwall,	....	....	*a*2 00	*a*$1 20	....	*a*$1 10									
						*a*1 25									
Delaware and Hudson Canal Company,	....	....	61 10	45 76											
Delaware Western,	....	....	58 00	50 00											
Dunkirk, Allegheny Valley and Pittsburgh,	$4 00	$85 00	....	55 00	....	....	....	....	....	....	$65 00	$37 50	....	$45 00	
East Broad Top, and Coal Company,	2 50														
	9 00														
Greenlick Narrow Gauge,	....	....	....	40 00											
Hanover Junction, Hanover and Gettysburg,	5 50	39 00	39 00	30 00	....	15 50	....	....	....	....	....	....	*a*$1 12		
Harrisburg and Potomac,	....	....	....	32 50											
Ironton,	....	....	....	38 00											
Junction,	....	....	....	....	....	....	....	....	....	....	....	....	....	15 00	
Little Saw-Mill Run,	....	....	*a*2 50	*a*1 75	....	....	....	....	....	....	*a*2 50	*a*1 25			
				*a*2 00											
Monongahela Inclined Plane,	....	....	....	55 00											
Montrose,	2 75														
New York, Lake Erie and Western, Delaware Division. (The Hawley Branch, leased; Jefferson, leased,)	....	....	....	....	....	....	....	....	....	....	52 52	35 10			
New York, Pennsylvania and Ohio, and branches,	9 60	....	76 50	65 00	....	....	$93 60	$91 00	....	....	....	....	....	60 00	$125 00
Northern Central, and branches,	8 96	101 25	67 68	47 05	....	21 02	67 30	42 40	$67 50	$32 41	61 50	41 60	31 20	27 00	
Olean, Bradford and Warren,	16 00	....	....	....	....	40 00									
Pennsylvania Company—Pittsburgh, Fort Wayne and Chicago Railway, and branches,	10 00	125 00	80 00	58 50	....	34 10	....	58 50	....	....	70 00	40 00	65 00	39 00	
Chartiers Railway,	10 00														
Pittsburgh, Cincinnati and St. Louis,	20 37	75 00	*a*2 90	*a*2 00	$50 00	*a*1 10	*a*2 50	*a*2 33	*a*2 00	*a*1 50	....	....	*a*1 60	58 50	*a*1 25
							75 00								*a*1 29
															55 00
People's,	....	....	....	45 00	....	....	....	....	....	....	57 00				
Perkiomen,	....	....	65 00	48 72	....	*c*29 68									
Philadelphia and Baltimore Central,	....	66 66	....	*a*1 90	....	*a*1 00	....	*a*2 00	45 00	*a*1 00					
				*a*2 10		*a*1 15		*a*1 15		*a*1 15					
Philadelphia, Wilmington and Baltimore,	....	150 00	74 00	53 82	65 00	34 93	65 00	56 25	....	....	65 00	39 00	54 72	67 50	
Pittsburgh and Castle Shannon,	....	65 00	....	*a*1 75											

Pittsburgh and Lake Erie,	5 00	....	70 00	*a*1 65 *a*2 00	....	....	...	40 00 *a*1 75	...	....	*a*1 75 *a*1 87	*a*1 10 *a*1 20			
Pittsburgh Southern,	6 00 *d*10 00	60 00	....	*a*1 70											
Pittsburgh, Titusville and Buffalo,	15 00	....	75 00	58 50	40 00	32 80	....	....	....	....	....	....	32 80	35 00	
Pittsburgh and Western,	3 50	....	....	40 00											
West Chester and Philadelphia,	....	50 00	.. .	*a*1 90 *a*2 10	....	*a*1 00 *a*1 15	.. .	*a*2 00 *a*2 15							
Western Maryland,	4 00 6 25	....	65 00	40 00 50 00											
Wilmington and Northern,	16 88	....	62 40	52 00	....	31 20	65 00	52 00	....	...	....	....	....	52 00	

a Daily wages. *c* Employed two months in the year. *d* Per quarter.

A TABLE *showing the monthly wages of* RAILROAD EMPLOYEES—MOTIVE POWER—*compiled from reports to the Bureau, for the year ended December 31, 1880.*

NAME OF RAILROAD.	Master mechanics.	General foremen.	Foremen.	Road foremen of engines.	Assistant road foremen of engines.	Motive power clerks.	Clerks.	Engine preparers.	Assist't engine preparers.	Car inspectors.	Car cleaners.	Riggers.
Barclay,			$52 00							$39 00		
			71 50									
Bell's Gap,										38 50		
Catasauqua and Fogelsville,		a$1 75										
Cornwall,		80 00										
Cumberland Valley and branches,	$110 00									a1 35	$a1 10	
Delaware and Hudson Canal Company,			57 20									
			49 92									
Dunkirk, Allegheny Valley and Pittsburgh,	112 50					$10 00		$54 00		44 12	35 40	
East Broad Top and Coal Company,	55 00									29 12	13 00	
Hanover Junction, Hanover and Gettysburg,	62 50									15 50	b10 00	
Little Saw Mill Run,		a3 00										
New York, Lake Erie and Western, Susquehanna Division,	200 00	115 00	86 46	$112 50			80 83	56 91	$46 20	44 78	32 63	
New York, Lake Erie and Western, Delaware Division; the Hawley branch (leased,) Jefferson, (leased,)			68 70									
Buffalo, Bradford and Pittsburgh, (leased,)			63 00							47 00	40 60	
New York, Pennsylvania and Ohio, and branches,	160 00	125 00	83 14	93 00		61 58		52 00	44 20	52 78	39 52	
Northern Central and branches,	126 67	120 00	73 52	120 00	$70 00	110 00	57 89	47 04	38 93	40 47	28 09	$50 92
Olean, Bradford and Warren,			65 00							45 00	40 00	
Peach Bottom,			75 00							35 00		
Pennsylvania Company—Pittsbugh, Fort Wayne and Chicago railway and branches,	259 00	125 00	85 00			110 00	50 00	52 00	34 10	45 00	27 00	
Pennsylvania Company—Chartiers Railway,											15 00	
Pennsylvania Co.,—Pittsburgh, Cincinnati and St. Louis,	200 00	150 00	a2 15				49 88	a1 83		44 09	a1 07	
			74 21									
Perkiomen,								42 00				
Philadelphia and Baltimore Central,	120 00		85 00				30 00			a1 65		
			95 00							a2 25		
Philadelphia, Wilmington and Baltimore,	225 00	107 50	89 55	125 00			60 00	45 00		51 33	b24 82	51 30
											b38 60	

Pittsburgh and Castle Shannon,	65 00	65 00										
Pittsburgh and Lake Erie,	100 00	67 50	*a*1 50	....	.....	.....	47 00	*a*1 25	.....	*a*1 50	25 00	50 00
								*a*1 35		*a*1 65	*a*1 12	
										*a*1 75		
Pittsburgh Southern,	60 00	.....	.....	....	....	.....	.....	35 00	.....	45 00	*b*15 00	
								40 00				
Pittsburgh, Titusville and Buffalo,	150 00	.....	76 00	....	....	35 00	....	....	.....	45 00	28 00	
Pittsburgh and Western,	75 00	.....	.....	....	.....	.....	.....	.....	.....	.....	*b*15 00	
Tioga and Elmira State Line,	135 00	....	.....	.....	.....	55 00	.....	*a*1 20	....	*a*1 95		
West Chester and Philadelphia,	80 00	.....	*a*2 50	....	....	.....	30 00	.....	.....	*a*1 75	*a*1 25	
			85 00								25 00	
											40 00	
Western Maryland,	.....	75 00	....	.....	.....	.....	.....	.....	.....	35 00	20 00	
										45 00	35 00	
Wilmington and Northern,	90 00	.....	60 00	.. ..	.....	.....	.....	.....	.....	47 25	*e*15 00	

a Daily wages. *b* Females. *e* Boys.

RAILROAD EMPLOYEES—MOTIVE POWER—*Continued.*

NAME OF RAILROAD.	Watchmen.	Machinists.	Machinists' helpers.	Machinists' apprentices.	Blacksmiths.	Blacksmiths' helpers.	Blacksmiths' apprentices.	Boiler-makers.	Boiler-makers' helpers.	Tinners.	Tinners' helpers.	Tinners' apprentices.	Coppersmiths.
Barclay,	$39 00	.....	.....	.....	$65 00	$32 50							
Cornwall,	*a*1 00												
Cumberland Valley and branches,	*a*1 45	$*a*1 85	*a*$1 25	*a*$0 90	*a*1 82	*a*1 25	.....	.....	....	*a*$1 75			
Delaware and Hudson Canal Company,	29 90	51 86	.....	17 42	56 55	32 50							
Dunkirk, Allegheny Valley and Pittsburgh,	33 75	57 00	30 00	.....	65 00	37 50	.....	$54 00	$15 00	52 00			
East Broad Top and Coal Company,	32 40	.....	.....	....	*a*1 25	*a*1 12							
					*a*2 00								
Hanover Junction, Hanover and Gettysburg,	...	44 33	....	10 00	43 50	31 25							
Little Saw Mill Run,	.....	*a*2 25											
		*a*2 00											
Montrose,	*a*1 80												
New York, Lake Erie and Western, Susquehanna division,	56 64	55 55	40 00	17 76	55 21	35 16	$15 70	57 83	32 85	57 00	$40 00	$12 00	$50 00
New York, Lake Erie and Western, Delaware division; the Hawley branch, (leased,) Jefferson, (leased,)	.....	39 00	.....	.....	49 40								
Buffalo, Bradford and Pittsburgh, (leased,)	.....	.....	.....	.....	50 00	40 00							
New York, Pennsylvania and Ohio, and branches,	50 00	63 70	39 00	31 72	65 78	41 60	...	65 25	38 22	61 10	...	23 40	61 10
Northern Central and branches,	42 92	48 83	34 91	17 68	48 35	32 18	12 98	47 29	31 92	42 46	28 18	12 35	52 13
Olean, Bradford, and Warren,	40 00												
Peach Bottom,	30 00												
Pennsylvania Company—Pittsburgh, Fort Wayne and Chicago Railway and branches,	40 00	55 00	39 00	21 18	60 00	40 30	.....	55 00	39 78	52 00	39 00	19 50	60 00
Pennsylvania Company — Pittsburgh, Cincinnatti and St. Louis,	*a*1 14	*a*2 18	*a*1 30	*a*1 10	*a*2 12	*a*1 21	.....	*a*2 14	*a*1 26	57 04	*a*1 10	.....	*a*2 39
	36 10										*a*2 02		
Philadelphia and Baltimore Central,	50 00	*a*1 50	.....	*a* 60	*a*2 10	*a*1 25							
		*a*2 25			*a*2 40	*a*1 50							
					82 50								
Philadelphia, Wilmington and Baltimore,	41 68	54 27	.....	*e*20 00	59 28	38 19	.....	52 00	39 00	52 26	.....	.....	84 50
Pittsburgh and Lake Erie,	.....	*a*1 77	*a*1 00	.....	*a*2 00	*a*1 15	.....	*a*1 95					
			*a*1 15										
Pittsburgh Southern,	.....	.....	.....	.....	60 00	40 00							

Pittsburgh, Titusville and Buffalo,	32 85	70 20	33 80		57 20	36 40		52 00	33 80	57 20	19 50	
Pittsburgh and Western,		58 00	35 00	26 00	50 00	40 00						
Salisbury,	37 50											
Tioga and Elmira State Line,	*a*1 75	*a*2 00	*a*1 30	*a*75	*a*2 18	*a*1 30		*a*1 80	*a*1 30			
		*a*2 40			*a*2 50	*a*1 40		*a*3 00				
West Chester and Philadelphia,		*a*2 25			*a*3 25	*a*1 60						
Western Maryland,	40 00	*a*2 00		*a*70	*a*2 35	*a*1 25		75 00		*a*2 00		
		*a*2 88			*a*2 75							
Wilmington and Northern,	45 00	59 60		*e*18 00	44 00			63 00	40 00			

a Daily wages. *b* Females. *e* Boys.

RAILROAD EMPLOYEES.—MOTIVE POWER—*Continued.*

NAME OF RAILROAD.	Carpenters.	Carpenters' apprentices.	Laborers, carpenter shop.	Trimmers.	Painters.	Painters' apprentices.	Laborers, paint shop.	Oil distributors.	Coal men.	Grinders.	Laborers.	Engine cleaners.	Stationery engineers.
Barclay,	$39 00											$29 90	
Catasauqua and Fogelsville,	*a*1 60												
Cumberland Valley and branches,	*a*1 68		*a*$1 00	*a*$2 10	*a*$1 62	*a*$0 90	*a*$1 00	*a*$1 00	*a*$1 00		*a*$1 35	1 40	*a*$1 00
											1 00		
Delaware and Hudson Canal Company,					51 35						29 59	24 18	
Delaware Western,												40 00	
Dunklrk, Allegheny Valley and Pittsburgh,	43 75				42 25		33 75					33 75	45 00
East Broad Top and Coal Company,	*a*1 35	$26 00										*a*1 00	
	*a*1 80												
Hanover Junction, Hanover and Gettysburg,												15 00	
Little Saw-Mill Run,												*a*1 45	
Monongahela Inclined Plane,													80 00
New York, Lake Erie and Western, Susquehanna division,	54 00	12 00			51 27	12 00			40 75		35 00	36 44	51 55
New York, Lake Erie and Western, Delaware division; the Hawley branch, (leased;) Jefferson, (leased,)	47 75								37 00		36 40	36 10	
Buffalo, Bradford and Pittsburgh, (leased,)												42 00	
New York, Pennsylvania and Ohio, and branches,	59 54		40 30		48 88		40 33	45 00	35 10		35 36	35 62	49 40
Northern Central and branches,	46 29	16 00	29 33	53 05	40 47	16 05	27 26	37 42	32 31	$37 20	32 24	32 41	42 45
Pennsylvania Company—Pittsburgh, Fort Wayne and Chicago railway, and branches,	52 00	29 90	29 90	54 60	55 60	39 00		46 50	29 90		29 90	29 90	59 66
Pittsburgh, Cincinnati and St. Louis,	*a*1 90	*a*99	*a*1 25	*a*2 02	*a*1 81	*a*1 17		*a*69	*a*1 08		*a*1 09	*a*1 02	*a*1 72
								15 00	45 00				
Perkiomen,									32 40			28 73	41 67
Philadelphia and Baltimore Central,	*a*1 80		*a*1 25	*a*2 00	*a*1 75				50 00		*a*1 25	*a*1 25	47 50
	*a*2 10				*a*3 00							*a*1 50	
Philadelphia, Wilmington and Baltimore,	51 25	*e*23 67		51 63	50 75		35 10	50 00	39 37		32 81	31 20	41 67
Pittsburgh and Castle Shannon,											*a*1 25		47 50
Pittsburgh and Lake Erie,	*a*2 00				*a*2 00						*a*1 10	*a*1 12	*a*90
	*a*1 65				*a*1 75								
Pittsburgh, Titusville and Buffalo,	52 00			57 20	44 20				26 00		26 00	39 00	40 00
Pittsburgh and Western,					40 00								

Tioga and Elmira State Line,	*a*1 50		*a*1 20								*a*1 20	*a*1 20	*a*1 87
	*a*2 00												
West Chester and Philadelphia,	*a*1 50		*a*1 25					*a*1 65	*a*1 50			*a*1 20	*a*1 75
	*a*2 00											*a*1 40	
Western Maryland,	*a*1 60		*a*1 25		*a*2 20		*a*1 25	*a*1 25				26 00	
	*a*2 00				*a*3 00							40 00	
Wilmington and Northern,	50 62				53 00	*c*15 00		36 00	36 50		31 11		50 00

a Daily wages. *b* Females. *c* Boys.

RAILROAD EMPLOYEES.—MOTIVE POWER—*Continued.*

NAME OF RAILROAD.	Stationery firemen.	Passenger engine-men.	Passenger firemen.	Freight engine-men.	Freight firemen.	Distributing engine-men.	Distributing firemen.	Yard engine-men.	Yard firemen.	Women, not specified.	Boys, not specified.	Other employees.
Barclay,	$32 50	$78 00	$46 80	$75 40	$46 80							
Bell's Gap,	.....	.....	.....	*a*2 70	*a*1 60	.....	.....	.....	.....	.....	.....	$30 00
Cornwall,	.....	.....	..	*a*2 10	*a*1 65							
Cumberland Valley and branches,	.....	*a*3 50	*a*2 00	*a*3 50	*a*2 00	.....	.....	*a*$2 50	*a*$1 50	.....	.....	*a*70
Delaware and Hudson Canal Company,	.....	81 38	46 28	81 38	46 28	.....	.....	.....	.....	.....	.....	31 46
Delaware Western,	.....	75 00	40 00	62 50	40 00	.....	.....	45 00				
Dunkirk, Allegheny Valley and Pittsburgh,	.....	90 00	54 00	90 00	54 00	.....	.....	73 00	45 00			
East Broad Top and Coal Company,	.....	*a*2 70	*a*1 35	*a*1 50	*a*1 00	.....	.....	.....	.....	.....	.....	*a*1 20
Greenlick Narrow Gauge,	.....	.....	.....	*a*2 70	*a*1 35							
Harrisburg and Potomac,	.....	44 00	27 50	65 00 40 00	27 50							
Ironton,	.....	.....	.....	75 00	55 00							
Keystone Coal Company,	.....	.....	.....	65 00	35 00	$75 00	$40 00					
Ligonier Valley,	.....	65 00	35 00									
Little Saw-Mill Run,	.....	.....	.....	*a*2 75	*a*2 10	.....	.....	.....	.....	.....	.....	*a*1 75
Monongahela Inclined Plane,	55 00											*a*2 00
Montrose,	.....	*a*3 00	*a*1 75									
New York, Lake Erie and Western, Susquehanna division,	46 39	.....	.....	.....	.....	.....	.....	87 39	61 28	$10 00		
New York, Lake Erie and Western, Delaware division; the Hawley branch, (leased;) Jefferson, (leased,)	.....	93 60	55 25	93 60	55 25	.....	.....	93 60	55 37			
Buffalo, Bradford and Pittsburgh, (leased,)	.....	118 80	65 00	118 80	65 00	.....	.....	87 60	60 00			
New York, Pennsylvania and Ohio, and branches,	.....	92 30	52 00	88 92	48 36	.....	.....	75 14	47 58	.....	$23 40	{ 65 00 { 100 00
Northern Central and branches,	36 25	107 47	51 28	93 05	44 43	88 02	42 40	70 01	40 76			
Oil City and Ridgeway,	.....	.....	..	50 00	25 00							
Olean, Bradford and Warren,	.....	90 00	50 00	80 00	50 00	.....	.....	65 00	30 00			
Peach Bottom,	.....	50 00	35 00	40 00	35 00							
Pennsylvania Company—Pittsburgh, Fort Wayne and Chicago railway and branches,	.....	152 00	62 00	108 00	58 50	.....	.....	.....	.....	22 50	21 60	54 00
Chartiers railway,	.....	*a*3 50	*a*1 60	*a*3 20	*a*1 60	.....	.....	.....	.....	.....	.....	5 00
Pittsburgh, Cincinnati and St. Louis,	.....	*a*3 58	*a*1 82	*a*2 91	*a*1 64	*a*2 84	*a*1 52	*a*2 30	*a*1 37	.....	*a* 75	*a*1 14 to *a*2 54
People's,	.....	68 00	53 00								*a* 96	38 67

Perkiomen,		92 21	50 00	90 00	48 89							
Philadelphia and Baltimore Central,		*a*3 00	*a*1 75	*a*3 00	*a*1 75							
Philadelphia, Wilmington and Baltimore,		96 21	49 27	88 26	46 34	71 25	42 50	71 00	*c*26 00 *c*38 06			
Pittsburgh and Castle Shannon,	33 00	75 00		50 00	30 00							35 00
Pittsburgh and Lake Erie,		*a*3 25	*a*1 50	*a*2 50	*a*1 45			*a*2 50	*a*1 50			75 00 *a*2 00
Pittsburgh Southern,		70 00	70 00	34 00	34 00							
Pittsburgh, Titusville and Buffalo,	26 00	130 00	55 00	78 00	48 00							5 00
Pittsburgh and Western,		75 00	45 00	75 00	45 00							70 00 25 00
Sallsbury,		60 00		37 50								
Tioga and Elmira State Line,		*a*3 50	*a*2 00	*a*3 00 *a*3 75	*a*1 50 *a*2 00							
West Chester and Philadelphia,		*a*2 50 *a*3 00	*a*1 70	*a*3 00	*a*1 70			*a*2 25	*a*1 10			
Western Maryland,		*a*2 75 *a*4 25	*a*1 75 *a*2 50	*a*3 00 *a*3 50	*a*1 75 *a*2 25			*a*2 50	*a*1 50			*a*2 25
Wilmington and Northern,		80 00	45 00	75 60	43 20	52 36						

a Daily wages. *b* Females. *c* Boys.

FARM WAGES AND BOARD—1879.

COUNTIES.	By the month, (whole year,) with board.	By the month, (summer months,) with board.	By the day, (with board,) regular work.	By the day, (without board,) regular work.	By the month, (whole year,) without board.	By the month, (summer months,) without board.	Estimated cost of board per day.
Adams,	$8 00	$11 00	$0 65	$1 00	$16 00	$20 00	$0 30
Allegheny,	12 50	16 50	90	1 10	20 00	25 00	40
Armstrong,	11 00	13 00	62	89	18 50	20 50	28
Beaver,	13 00	15 50	68	90	18 75	22 50	30
Bedford,	8 75	11 50	50	78	11 75	18 75	30
Berks,	9 00	13 00	50	70	16 50	19 50	23
Blair,	10 50	12 00	50	80	18 00	20 00	33
Bradford,	12 50	14 00	55	75	18 00	20 00	27
Bucks,	13 00	15 50	62	1 00	21 00	23 00	40
Butler,	10 50	13 00	50	1 00	13 00	22 00	40
Cambria,	10 00	12 00	60	75	20 00	25 00	38
Cameron,	12 00	15 00	65	1 00	20 00	25 00	45
Carbon,	9 00	11 00	50	90	. . . . .	. . . .	40
Centre,	10 00	11 75	50	75	15 00	18 00	30
Chester,	11 75	15 00	58	78	20 00	24 00	38
Clarion,	10 00	14 00	75	1 00	18 00	20 00	32
Clearfield,	10 50	15 00	72	95	. . . . .	. . . .	34
Clinton,	12 25	16 50	65	90	18 00	23 25	37
Columbia,	10 00	12 00	60	90	16 75	20 00	33
Crawford,	11 00	12 75	62	87	14 00	16 00	37
Cumberland,	9 25	11 00	50	77	16 00	18 50	35
Dauphin,	9 00	11 50	55	1 00	21 00	25 00	23
Delaware,	12 00	15 50	68	95	20 00	23 00	30
Elk,	14 00	16 00	62	1 05	23 00	25 00	42
Erie,	11 50	13 75	75	1 00	20 00	23 50	32
Fayette,	11 00	13 50	62	87	18 00	21 50	25
Forest,	12 50	15 50	65	1 05	21 50	24 50	32
Franklin,	10 00	12 50	62	87	13 50	16 50	25
Fulton,	8 50	12 00	55	82	15 50	18 00	28
Greene,	10 00	13 50	62	87	14 00	18 00	33
Huntingdon,	9 75	11 50	60	87	16 50	18 00	27
Indiana,	9 75	11 50	62	87	14 75	17 50	34
Jefferson,	11 00	15 50	65	1 00	15 50	21 50	28
Juniata,	11 00	14 50	50	50	. . . . .	. .	33
Lackawanna,	11 00	13 75	75	1 00	20 00	25 00	32
Lancaster,	10 50	13 00	62	85	15 00	18 50	22
Lawrence,	12 20	14 50	68	85	16 50	20 00	31
Lebanon,	9 00	11 25	60	85	16 00	20 50	28
Lehigh,	8 00	11 00	50	75	. . . . .	. . . . .	28
Luzerne,	10 00	13 50	53	80	18 50	21 50	32
Lycoming,	11 50	13 00	65	87	16 50	19 00	28
McKean,	11 75	14 75	75	1 00	20 00	24 50	32
Mercer,	10 75	13 00	55	80	10 00	22 00	27
Mifflin,	9 50	11 25	60	89	13 00	18 00	27
Monroe,	11 50	14 00	60	87	. . . . .	. . . . .	26
Montgomery,	11 00	15 00	87	1 00	19 25	22 00	40
Montour,	9 00	12 50	50	73	15 00	19 00	24
Northampton,	9 25	11 50	60	90	18 50	22 00	25
Northumberland,	9 50	11 00	50	90	17 25	20 00	38
Perry,	9 50	11 00	50	80	16 00	18 50	28
Philadelphia,	12 00	15 00	75	1 05	20 00	24 00	40
Pike,	10 00	13 00	57	89	18 50	22 00	40
Potter,	13 50	16 75	87	1 05	. . . . .	20 00	37
Schuylkill,	9 00	13 50	50	90	18 00	22 00	40
Snyder,	9 00	12 00	50	70	14 00	17 50	27
Somerset,	11 00	14 00	70	87	16 00	. . . .	37
Sullivan,	11 00	14 00	75	1 04	16 00	20 00	35
Susquehanna,	11 00	13 50	64	90	16 25	20 75	24
Tioga,	11 50	14 25	75	1 00	. . . . .	. . . . .	38
Union,	10 00	11 00	50	75	. . . . .	. .	26
Venango,	10 00	13 75	75	90	16 50	18 75	30
Warren,	11 00	15 00	73	1 00	16 00	20 00	32
Washington,	10 25	13 50	60	90	17 00	21 00	31
Wayne,	11 00	12 25	75	1 00	15 00	18 50	34
Westmoreland,	10 25	12 25	50	70	16 50	17 75	32
Wyoming,	9 50	11 75	60	85	17 00	19 50	33
York,	10 25	11 75	73	95	17 75	19 75	30
Average,	$10 58	$13 40	$0 63	$0 88	$17 44	$21 25	$0 32

FARM WAGES AND BOARD, 1880.

COUNTIES.	By the month, (whole year,) with board.	By the month, (summer months,) with board.	By the day, (with board,) regular work.	By the day, (without board,) regular work.	By the month, (whole year,) without board.	By the month, (summer months,) without board.	Estimated cost of board per day.	Household help—female, by the week, with board.
Adams,	$9 87	$14 50	$0 67	$0 90	$16 00	$20 00	$0 40	$1 50
Allegheny,	11 75	16 10	1 00	1 25	20 10	23 50	40	1 75
Armstrong,	12 25	17 50	1 00	1 28	20 25	28 50	32	2 00
Beaver,	12 75	17 12	75	1 10	18 12	23 75	30	2 00
Bedford,	9 75	11 75	60	90	13 75	20 25	30	1 35
Berks,	10 50	13 50	70	95	15 50	19 25	28	4 50
Blair,	12 25	15 50	62	95	20 25	24 75	31	1 50
Bradford,	12 25	15 75	65	95	17 50	22 25	21	1 35
Bucks,	14 75	19 15	75	1 10	21 15	26 25	35	2 00
Butler,	9 87	14 50	65	1 00	18 50	24 12	32	1 75
Cambria,	12 15	15 50	55	85	17 50	21 75	30	1 20
Cameron,	12 50	15 75	70	95	16 50	21 75	30	1 40
Carbon,	9 75	12 50	62	95	18 00	22 25	30	1 30
Centre,	10 75	13 50	55	90	14 75	19 50	28	1 35
Chester,	13 15	18 50	70	95	20 50	23 75	32	1 50
Clarion,	14 10	18 25	70	95	18 75	22 75	30	1 50
Clearfield,	13 25	16 50	75	1 00	17 50	21 75	26	1 30
Clinton,	12 10	15 50	75	1 00	18 75	22 75	31	1 40
Columbia,	10 75	12 50	65	95	16 00	18 50	30	1 45
Crawford,	2 50	16 25	70	95	18 00	21 50	31	1 87
Cumberland,	11 50	13 50	60	95	17 00	21 25	26	1 50
Dauphin,	13 00	17 20	75	95	20 10	23 80	25	1 35
Delaware,	12 50	15 50	75	1 10	19 50	24 50	33	2 00
Elk,	12 10	15 75	75	1 12	20 25	24 25	31	1 40
Erie,	12 50	14 50	78	1 05	18 10	22 50	35	1 70
Fayette,	12 50	14 75	70	92	20 00	25 00	25	1 50
Forest,	15 00	20 00	78	1 12	24 00	30 00	40	1 60
Franklin,	10 25	12 50	75	1 00	14 50	19 75	24	1 30
Fulton,	10 15	12 25	55	87	16 25	29 50	34	1 25
Greene,	9 50	11 75	60	80	18 50	22 75	33	1 75
Huntingdon,	11 25	13 50	74	90	17 50	22 25	25	1 30
Indiana,	9 75	12 50	56	85	18 50	20 75	30	1 50
Jefferson,	11 50	13 50	60	75	15 50	20 25	27	1 50
Juniata,	12 10	14 25	70	95	18 25	22 25	30	1 80
Lackawanna,	13 50	15 75	87	1 10	20 10	25 25	30	1 60
Lancaster,	11 50	14 20	65	90	18 50	22 25	28	1 75
Lawrence,	13 50	15 75	75	1 00	18 50	22 75	27	2 00
Lebanon,	10 50	13 75	75	1 00	18 75	20 00	27	1 50
Lehigh,	11 15	13 20	75	1 00	16 75	20 75	30	1 50
Luzerne,	11 50	14 75	68	90	18 75	23 10	32	1 50
Lycoming,	12 75	15 25	70	95	18 25	21 75	28	1 87
McKean,	13 75	16 75	1 00	1 20	24 50	27 75	30	1 75
Mercer,	12 75	15 75	65	1 00	20 50	25 10	40	1 30
Mifflin,	9 25	11 12	75	90	14 50	18 25	30	1 25
Monroe,	8 75	11 25	50	87	12 10	14 75	28	1 50
Montgomery,	14 25	16 75	90	1 10	21 25	25 12	32	2 00
Montour,	10 50	13 50	65	1 00	18 75	23 50	35	1 50
Northampton,	15 75	16 25	72	1 00	16 75	21 20	30	1 75
Northumberland,	10 50	12 50	62	95	14 75	17 50	30	1 50
Perry,	9 75	11 25	55	80	12 25	16 75	27	1 25
Philadelphia,	19 75	21 50	1 00	1 25	25 10	28 75	50	2 00
Pike,	11 25	15 75	75	1 18	14 25	18 75	30	1 25
Potter,	12 50	14 75	78	1 15	20 10	23 75	32	1 75
Schuylkill,	13 25	17 25	75	1 00	26 25	31 75	31	1 50
Snyder,	12 75	15 75	75	1 00	14 75	18 75	25	1 25
Somerset,	11 75	14 25	75	1 00	19 25	23 25	29	1 40
Sullivan,	12 75	14 75	75	90	16 25	20 25	28	1 50
Susquehanna,	11 75	14 75	70	95	16 25	21 75	30	2 00
Tioga,	12 25	14 75	75	1 10	20 12	22 25	35	1 50
Union,	10 25	12 87	70	90	16 75	20 75	25	1 75
Venango,	11 50	14 75	65	90	16 50	22 25	30	1 50
Warren,	11 50	15 50	75	1 00	17 50	20 50	30	1 75
Washington,	12 50	15 10	70	90	20 50	23 25	31	1 50
Wayne,	12 25	14 87	75	1 05	22 25	25 52	32	1 75
Westmoreland,	12 12	15 25	75	1 00	22 50	26 12	27	1 60
Wyoming,	13 50	16 25	75	1 10	19 50	24 25	28	1 75
York,	12 25	14 50	70	1 00	18 75	24 25	32	1 50
Average,	$11 97	$14 90	$0 71	$0 98	$18 32	$22 35	$0 30	$1 55

EMPLOYEES'

A TABLE *showing the average daily and yearly earnings and expenditures,*
Bureau, for the year

No. of return.	OCCUPATION.	COUNTY.	Age	Years in present employ.	Hours worked per day.	Number of days employed during the year.	PIECE WORK.	
							Prices paid per—	Number of pieces constituting a day's work.
1	Miner, (coal,)	Allegheny,	51	*a*13	10	292	*g*$3 00	*h*80
2	Do.	do.	36	7	12	266	*g*3 25	*h*75
3	Do.	do.	52	9	10	184	*g*3 25	*h*75
4	Do.	do.	52	22	14	96	*g*3 50	*h*70
5	Do.	do.	40	*a*10	11	167	*g*3 50	*h*60
6	Do.	do.	23	3	10	285	*g*3 50	*h*40
7	Do.	do.	29	3	. . .	160	*g*3 50	*h*75
8	Do.	do.	30	12	10	167	*g*3 00	*h*75
9	Do.	do.	35	10	11	220	*g*3 25	*h*70
10	Do.	do.	39	3	12	167	*g*3 50	*h*60
11	Do.	do.	35	*a*6	10	212	91	*i*2$\frac{1}{2}$
12	Do.	do.	43	3	11	245	*g*3 50	*h*70
13	Do.	Armstrong,	50	9	10	. .	56	*i*
14	Do.	Beaver,	52	12	13	150	80	*i*2$\frac{1}{2}$
15	Do.	Bedford,	35	4	10	312	. . .	. . . . .
16	Do.	Bradford,	47	3$\frac{1}{2}$	10	274	60	*i*4$\frac{1}{2}$
17	Do.	Butler,	51	. . .	10	275	60	*i*3
18	Do.	Cambria,	50	14	9	308	45	*i*3
19	Do.	do.	34	3	10	167	45	*i*4
20	Do.	do.	35	6	10	167	45	*i*4
21	Do.	do.	37	26	11	234	45	*i*4
22	Do.	do.	33	7	9	300	55	*i*4
23	Do.	do.	47	. . .	. .	. .	46	*i*3
24	Do.	Centre,	32	4	10	200	50	*i*4
25	Do.	Clearfield,	36	6	10	200	50	*i*4$\frac{1}{2}$
26	Do.	do.	35	6	10	200	50	*i*4$\frac{1}{2}$
27	Do.	do.	32	5	10	300		6
28	Do.	do.	54	6	9	. . .	.	
29	Do.	do.	49	4	10	.	50	
30	Do.	do.	34	1	10	278	36	*i*5
31	Do.	Fayette,	69	*a*4	10	229	*g*3 00	. . . . .
32	Do.	do.	37	12	12	140	*g*3 00	*h*75
33	Do.	Huntingdon,	35	2	10	170	50	*i*3
34	Do.	do.	33	*a*3	11	140	50	*i*3
35	Do.	McKean,	38	3	11	. . .	55	*i*
36	Do.	Mercer,	32	*a*16	11	275	75	*i*2
37	Do.	do.	53	4	10	250	70	*i*2
38	Do.	do.	42	7	10	240	75	*i*2
39	Do.	Somerset,	32	2	10	175	65	*i*
40	Do.	do.	49	3	11	100	65	*i*
41	Do.	do.	36	2	14	134	65	*i*
42	Do.	do.	37	9	. . .	240	50	*i*5
43	Do.	Tioga,	44	10	10	128	32	*i*6
44	Do.	do.	49	10	11	240	50	*i*4
45	Do.	do.	41	8	10	. . .	66	*i*3$\frac{1}{2}$
46	Do.	Westmoreland,	27	14	. . .	182	*g*3 50	*h*85
47	Do.	do.	54	4	10	143	60	*i*3$\frac{1}{2}$
48	Do.	do.	37	30	10	150	60	*i*4
49	Do,	do.	40	8	10	309	60	*i*3
50	Do.	do.	47	5$\frac{1}{2}$	10	275	*g*3 00	*h*78
51	Do.	do.	52	4	10	195	*g*3 00	*h*70
52	Do.	do.	35	10	10	. . .	60	*i*4
53	Do.	do.	36	13	10	. . .	60	*i*4
54	Do.	do.	25	. . .	12	229	*g*1 75	*h*75
55	Do.	do.	.	10	10	260	*g*3 00	*h*75
56	Do.	do.	42	1	10	200	. . . .	. . . . .
57	Civil engineer at mines,	Dauphin,	47	20	10	600	. . . .	. . . . .
58	Miner, (coal,)	do.	47	3	10	. . .	. .	. . . . .
59	Do.	Lackawanna,	35	15	9	. . .	65	*i*
60	Do.	do.	34	1$\frac{1}{2}$	10	. . .	57	*j*6
61	Do.	do.	30	*a*3	10	100	65	*i*6
62	Do.	do.	38	19	8	172	61	*i*3
63	Do.	do.	36	9	10	186	. . . .	. . . . .
64	Do.	do.	31	6	10	150	. . . .	. . . . .

Notation marks: *a* months; *g* per 100 bushels; *h* number o bushels; *i* tons, *j* cars.

RETURNS.

etc., of employés in various industries, compiled from returns to the ended December 31, 1880.

Daily earnings.	Earnings for 1880.	How often are wages paid?	FAMILY. Adults.	FAMILY. Children.	Earnings of family, exclusive of yourself, for the year.	Total earnings of the family, including yourself, for the year.	Total expenses for the year.	EXCESS OF: Earnings over expenses.	EXCESS OF: Expenses over earnings.	No. of return.
$2 40	$700 80	Monthly,	2	6		$700 80	$620 00	$80 80		1
2 44	649 04	do.	2	1		649 04	397 50	251 54		2
2 44	448 96	do.	1	7	$151 04	900 00				3
2 45	235 20	do.	2	1		235 20	275 00		$39 80	4
2 10	350 70	do.	2	8	349 30	700 00	738 00		38 00	5
1 40	399 00	do.	2	3		399 00	106 00		7 00	6
2 62	419 20	do.	2	2		419 20	348 00	71 20		7
2 25	600 75	do.	2	2		600 75	535 00	65 75		8
2 28	501 60	Semi-monthly,	2	2		591 60	391 00	110 60		9
2 10	350 70	Monthly,	2	4		350 70	406 00		55 30	10
2 27	481 74	do.	2	2		481 74	462 00	19 74		11
2 45	600 25	do.	2	7		600 25	572 50	27 75		12
	634 95	Semi-monthly,	2	10	476 22	1,111 17				13
2 00	300 00	Monthly,	2			300 00	287 00	13 00		14
2 25	702 00	do.	2	8	100 00	800 00	600 00	200 00		15
2 70	739 80	do.	2	10	760 20	1,500 00	1,398 00	102 00		16
1 80	495 00	do.	2	1	312 00	807 00	495 00	312 00		17
1 35	415 80	do.	2	7	988 00	1,403 80				18
1 80	300 60	do.				300 60	298 00	2 60		19
1 80	300 60	do.	2	5		300 60	316 00		15 40	20
1 80	421 20	do.	2	5		421 20	367 50	53 70		21
2 20	660 00	do.	2	3		660 00	579 00	81 00		22
1 38		do.	2	3						23
2 00	400 00	do.	2	3		400 00	350 00	50 00		24
2 25	450 00	do.	2	2		450 00	438 00	12 00		25
2 25	450 00	do.	2	3		450 00	407 00	43 00		26
3 00	900 00	do.	2	4		900 00	700 00	200 00		27
2 00		do.	2	7						28
2 00		do.	2	6			522 00			29
1 80	500 40	do.	2	6		500 40	485 00	15 40		30
3 00	657 00	do.	2	8	416 00	1,103 00	505 00	598 00		31
2 25	315 00	do.	2	1		315 00	295 00	20 00		32
1 50	255 00	do.	2	2		255 00				33
1 50	210 00	do.	2	1		210 00				34
		do.	2	3						35
1 50	412 50	Semi-monthly,	2			412 50	299 00	113 50		36
1 40	350 00	Monthly,	2	5	900 00	1,250 00	1,213 00	37 00		37
1 50	360 00	do.	2	5	312 00	672 00	731 00		59 00	38
1 03	180 25	do.	2	1		180 25	319 00		138 75	39
2 25	225 00	do.	2	1		225 00	302 00		77 00	40
1 50	201 00	do.	2	4		201 00	332 00		131 00	41
2 50	600 00	do.	2	6		600 00	626 00		26 00	42
1 92	245 76	do.	2	5		245 76				43
2 00	480 00	do.	2	4	600 00	1,080 00	857 00	223 00		44
2 31		do.	2	7		1,250 00	878 25	371 75		45
2 95	536 90	do.	2	2		536 90				46
2 10	300 30	do.	2	4	299 70	600 00	686 00		86 00	47
2 40	360 00	do.	1	2			568 00			48
1 80	556 20	do.	2	9	346 40	902 60	901 80	80		49
2 00	550 00	do.	2	8	150 60	700 00	730 00			50
2 00	390 00	do.	2	3	190 00	580 00	495 00	85 00		51
2 40		do.	2	3						52
2 40		do.	2	5						53
1 31	300 00	Weekly,	2			300 00	281 00	9 00		54
2 25	585 00	Monthly,	2	7	144 00	729 00				55
	500 00	do.	2	6	100 00	600 00	600 00			56
2 00	600 00		2	3		600 00	500 00	100 00		57
2 00		Monthly,	2	7						58
1 37	180 00	do.	1							59
*b*1 40		do.	2	3		240 00	240 00			60
*b*2 00	200 00	do.	2	3	4 00	204 00				61
*b*1 45	250 85	do.	2	4		250 85	323 00		72 15	62
2 00	372 00	do.	2	6		372 00	425 00		53 00	63
2 80	420 00	do.	2	3		420 00				64

b Laborers' wages deducted.

EMPLOYEES'—

No. of return.	Occupation.	County.	Age.	Years in present employ.	Hours worked per day.	Number of days employed during the year.	Piece work.	
							Prices paid per—	Number of pieces constituting a day's work.
65	Miner, (coal,)	Lackawanna,	47	18		242		
66	Do.	do.	49	3	10		$0 81	7
67	Do.	do.	24	9	9	140	67	*i*6
68	Do.	do.	34	1¾	8	180	80	6
69	Do.	do.	44	12	11	174		
70	Do.	do.	47	16	10	176		
71	Do.	do.	44	4½	10	171		
72	Do.	do.	43	20	10	200		
73	Do.	do	50	21	10			
74	Do.	do.	46	21	10	179		
75	Breaker boss,	do.	44	3¾	10	222		
76	Track layer,	do.	36	20	10	230		
77	Miner, (coal,)	Luzerne,	29	2	10	137		
78	Do.	do.	56	20	10	175		
79	Do.	do.	31	5	10	175		
80	Do.	do.	44	7	10	144		
81	Do.	do.	35	14	10	207		
82	Do.	Northumberland,	28	6	10	200		
83	Do.	do.	39	14	10	180		
84	Do.	do.	34	7	10	197		
85	Do.	do.	56	4	10	203		
86	Do.	do.	52	*a*6	10			
87	Do.	Schuylkill,	33	1	9	158		
88	Do.	do.	37	7	9	227		
89	Slate picker,	do.	48	6	10	175		
90	Blast-furnace keeper,	Berks,	33	13	12	365		
91	Do. do.	Lehigh,	34	15	12			
92	Do. do.	Mercer,	43	3	12	368		
93	Do. do.	Montgomery,	42	*a*18	12	365		
94	Refiner of iron,	Columbia,	53	9	12	170	1 10	tons, 3
95	Do.	Cumberland,	30	6	12	217	90	tons, 5½
96	Forgeman,	Berks,	36	3	14	198		
97	Do.	Cumberland,	24	*a*2	13		4 75	tons, 1
98	Puddler,	Allegheny,	39	8	11	275	5 50	tons, 1¼
99	Do.	do.	46	4	11		5 50	lbs., 2,400
100	Do.	do.	44	13	11	177	5 50	lbs., 2,375
101	Do.	do.	39	*a*17	11	184	5 50	lbs., 2,240
102	Do.	do.	64	27	10	214	5 50	lbs , 2,375
103	Do.	do.	33	5	10	250	5 18	
104	Do.	do.	47	7	10	230	5 50	lbs., 2,400
105	Do.	Armstrong,	43	3	10	207	5 50	
106	Do.	Berks,	37	10		270	3 50	
107	Do.	Chester,	29	5	10	237	4 00	
108	Do.	Columbia,	35	6	10	225	4 00	lbs., 2,240
109	Do.	Cumberland,	43	13	11	200	4 00	lbs., 2,425
110	Do.	Lawrence,	32	7	11	240	5 50	lbs., 2,240
111	Do.	Mercer,	33	4	11	92	5 50	lbs., 2,450
112	Do. helper,	do.	44	3	9	120		
113	Heater, 10 inch mill,	Allegheny,	54	3	10	100	65	tons, 7
114	Do. steel,	do.	30	15	10	200	1 10	tons, 15
115	Do.	do.	60	1	10	186		
116	Do. bar mill,	Armstrong,	48	8	9	217	65	tons, 6¾
117	Do. nail plate,	Cumberland,	44	15	10	200	44	to s, 9
118	Do.	Lehigh,	34	15	11	300	80	tons, 5
119	Do. bar mill,	Perry,	54	34	11	300	64	tons, 5
120	Roller, sheet,	Allegheny,	45		10	170	*d*35	heats, 15
121	Do. Russia sheet,	do.	43	16	12	255	3 00	tons, ½
122	Do. (guide,)	Blair,	45	5	10	217		
123	Do. nail plate,	Cumberland,	32	12	11	200	57	tons, 16
124	Do. do.	do.	36	4	10	236	53	tons, 19
125	Do. rails,	Dauphin,	35	10	12	280		
126	Do. flue iron,	Montgomery,	34	13	10	235	48	tons, 9½
127	Roller,	do.	48	12	10	190	40	tons, 7½
128	Do. rail,	Montour,	29	3	12	257	11	tons, 62
129	Do.	Perry,	44	5	11	275	36	tons, 10
130	Do. guide,	Philadelphia,	38	10	12	240		
131	Rougher,	Allegheny,	44	7		212	27	heat, 10
132	Do. muck,	do.	37	5	11	227		
133	Do. bar mill,	Perry,	32	6	11	292	27	tons, 10

Notation marks: *a*, months; *d*, per heat; *i*, ons.

RETURNS—*Continued.*

Average daily earnings.	Earnings for 1880.	How often are wages paid?	FAMILY. Adults.	FAMILY. Children.	Earnings of family exclusive of yourself for the year.	Total earnings of the family including yourself for the year.	Total expenses for the year.	EXCESS OF Earnings over expenses.	EXCESS OF Expenses over earnings.	No. of return.
$1 90	$460 00	Monthly,	2	2		$460 00	$452 00	$8 00		65
*b*3 74	549 78	do.	2	8	$504 22	1,054 00	1,123 80		$69 80	66
*b*2 42	338 80	do.	2	3		338 80				67
*b*3 10	558 00	do.	2	5	93 00	651 00	481 00	170 00		68
*b*2 00	348 00	do.	2	5	209 00	557 00	542 80	14 20		69
*b*2 16	380 16	do.	2	5	360 00	740 16	522 73	217 43		70
*b*2 00	342 00	do.	2	7	449 44	791 44	784 00	7 44		71
*b*2 00	400 00	do.	2	11	500 00	900 00				72
*b*2 25		do.	1				273 00			73
*b*2 50	447 50	do.	2	5	141 00	591 50				74
1 35	299 70	do.	2	4	73 84	373 54	663 00		289 46	75
2 00	460 00	do.	2			460 00	324 00	136 00		76
*b*1 60	219 20	do.	2	2	168 56	387 76	382 25	5 51		77
*b*2 00	350 00	do.	2	3	562 00	912 00				78
*b*2 00	350 00	do.	2	3		350 00	427 00		77 00	79
*b*2 50	360 00	do.	2	7	78 00	438 00	429 00	9 00		80
*b*2 25	465 75	do.	2	2		465 75	421 00	44 75		81
*b*1 75	350 00	do.	2	2		350 00	367 00		17 00	82
*b*2 00	360 00	do.	2	2		360 00	340 00	20 00		83
*b*1 75	344 75	do.	2	4	104 00	448 75	399 75	49 00		84
*b*2 30	466 90	do.	2	5	575 20	1,042 10	1,042 10			85
2 00		do.	2	3						86
*b*3 00	474 00	do.	2	4		474 00	438 62	36 38		87
*b*1 75	397 25	do.	2	4		397 25				88
1 00	175 60	do.	2	5	91 00	266 00				89
1 50	547 50	do.	2	1		547 50	443 00	104 50		90
1 75		do.	2	4						91
1 75	644 62	do.	2	7		644 62	397 00	247 62		92
1 30	474 50	do.	2	7	83 20	557 70	478 00	79 50		93
*b*1 65	280 50	do.	1	5		280 50	292 82		12 32	94
*b*3 00	651 00	do.	2	3		651 00	651 00			95
1 65	326 70	do.	2	2		326 70	230 00	96 70		96
*b*2 25										97
*b*4 50	1,237 50	Two weeks,	2	2	208 00	1,445 50	1,082 00	363 50		98
*b*3 65		do.	1	2	375 00		830 00			99
*b*3 60	637 25	do.	2	2		637 25	600 00	37 25		100
*b*3 40	629 60	do.	2	6		629 60	629 60			101
*b*3 50	749 00	do.	2	10	251 00	1,000 00	1,000 00			102
*b*3 46	865 00	Weekly,				865 00	631 14	233 86		103
*b*3 75	862 50	Two weeks,	2	1		862 50	550 00	312 50		104
*b*3 70	773 25	do.	2	1	336 00	1,109 25				105
*b*2 50	675 00	Monthly,				675 00	*c*208 00			106
*b*3 10	734 70	Weekly,	2	1		734 70	650 00	84 70		107
*b*2 65	596 25	Monthly,	2	7		596 25	596 25			108
*b*2 75	550 00	do.	2	2		550 00	400 00	150 00		109
*b*3 00	720 00	Two weeks,	2	6		720 00	620 00	100 00		110
*b*3 75	345 00	Monthly,	2	5		345 00	250 00	95 00		111
2 00	240 00	do.	2	4		240 00	300 00		60 00	112
4 55	455 00	Two weeks,	2	5	345 00	800 00	800 00			113
*b*8 00	1,600 00	Monthly,	2			1,600 00	736 00	864 00		114
4 75	883 50	do.	2	3		883 50	833 50			115
*b*4 38	950 46	Two weeks,	2	9		950 46	900 00	50 46		116
3 96	792 00	Monthly,	2	3		792 00	435 00	357 00		117
4 00	1,200 00	do.	2	6		1,200 00	900 00	300 00		118
3 20	960 00	do.	2	4		960 00	600 00	360 00		119
5 25	892 50	do.	2			892 50				120
4 50	1,147 50	Weekly,	2	4	102 50	1,250 00	650 00	600 00		121
*b*8 00	1,736 00	Monthly,	2	6		1,736 00				122
*b*5 25	1,050 00	do.	2	3		1,050 00	566 00	484 00		123
*b*4 60	1,085 60	do.	2			1,085 60	465 00	620 60		124
3 50	980 00	do.	2	5		980 00	750 00	230 00		125
*b*4 60	1,081 00	Weekly,	2	4		1,081 00	980 61	100 39		126
3 00	570 00	do.	2	4	230 00	800 00	800 00			127
6 82	1,752 74	Monthly,	2	2		1,752 74				128
3 60	970 00	do.	2	5	105 00	1,075 00	1,075 00			129
8 00	1,920 00	Weekly.	2	3		1,920 00				130
2 70	575 10	Semi-monthly,	2	4		575 10	575 10			131
3 50	794 50	do.	2	5		794 50	707 00	87 50		132
2 70	788 40	Monthly,	2	2		788 40	642 25	146 15		133

b Laborers' wages deducted. *c* Boarding.

EMPLOYEES'

No. of return.	OCCUPATION.	COUNTY.	Age.	Years in present employ.	Hours worked per day.	Number of days employed during the year.	PIECE WORK. Price paid per —	PIECE WORK. Number of pieces constituting a day's work.
134	Catcher, bar-mill,	Perry,	24	. . .	11	216	$0 16	tons, 9
135	Muck-roller,	Blair,	57	2	. . .	167	30	tons, 9½
136	Do.	Lawrence,	50	6	11	280	68	tons, 14½
137	Hooker, rail-mill,	Cambria,	33	3	12	246	*e*2 87	tons, 100
138	Nailer,	Allegheny,	40	2	11	212	. . .	. . .
139	Do.	Cumberland,	41	14	11	180	. . .	. . .
140	Do.	do.	28	2	11	200	22	kegs, 10
141	Do.	Lawrence,	63	2	11	200	4 00	tons, 4½
142	Do.	Montgomery,	46	14	11	250	. . .	. . .
143	Do. machinist,	Perry,	32	18	11	290	. .	. . .
144	Wire drawer,	Northampton,	54	36	10	187	*f*5	lbs., 4,000
145	Foreman, rolling-mill,	Montgomery,	50	29	. . .	312	. .	. . .
146	Sheet iron trimmer,	Allegheny,	52	19	10	300	75	tons, 5½
147	Shearer, sheet iron,	Armstrong,	33	4	10	250	75	tons, 12
148	Shearer, muck bar,	do.	36	3	10	250	75	tons, 10½
149	Helper, steel-mill,	Dauphin,	43	6	12	275	*d*10	heats, 35
150	Do.	do.	32	14	12	238	*e*3 20	tons, 100
151	Steel work employee,	do.	31	10	12	233	*e*3 60	tons, 170
152	Steel melter,	Allegheny,	43	4	11½	235	5 50	tons, 3½
153	Steel hammermen,	do.	43	. . .	9	200	. .	. . .
154	Blacksmith,	do.	36	2	10	300	. . .	. . .
155	Do.	do.	26	3	10	260	. . .	. . .
156	Do.	Blair,	60	45	10	300	. . .	. . .
157	Do.	do.	27	*a*6	10	250	. .	. .
158	Do.	Bradford,	50	15	10	310	. . .	. . .
159	Do.	Carbon,	28	7	10	222	. . .	. . .
160	Do.	Chester,	34	9	10	264	. . .	. . .
161	Do.	Clinton,	48	11	10	240	. . .	. . .
162	Do.	Crawford,	34	19	10	307	. . .	. . .
163	Do.	Cumberland,	29	10	. . .	300	. .	. .
164	Do.	Dauphin,	36	14	10	300	. . .	. . .
165	Do.	do.	53	2	12	300	. . .	. . .
166	Do.	Huntingdon,	39	6	10	307	. .	. . .
167	Do.	Lackawanna,	56	40	10	287	. .	. . .
168	Do.	Lancaster,	48	13	10	300	. . .	. . .
169	Do.	Northampton,	53	25	10	270	. . .	. . .
170	Do. helpers,	Philadelphia,	28	3	10	306	. .	. . .
171	Do. foreman,	do.	60	27	10	. . .	. . .	. . .
172	Bricklayer,	Fayette,	37	10	10	200	. .	. . .
173	Do.	Northampton,	31	8	10	223	. .	. . .
174	Brick-maker, / Other labor,	Lancaster,	39 / *a*5	. . .	. . . / 12	37 / 100	*k*60	3,300
175	Brick-maker, / Other labor,	Montour,	50	20	10	. . . / . . .	*k*65	3,000
176	Cabinet-maker.	Allegheny,	37	1	10	309	. . .	. . .
177	Do. furniture finish,	Lycoming,	31	10	10	309	. . .	. . .
178	Do.	Northampton,	59	1	10	250	. .	. . .
179	Car inspector,	Perry,	43	7	12	348	. . .	. . .
180	Do.	Somerset,	45	6	10	365	. . .	. . .
181	Carpenter,	Allegheny,	40	6	10	290	. . .	. . .
182	Do. millwright,	do.	49	8	10	300	. . .	. . .
183	Do.	do.	56	6	10	240	. . .	. . .
184	Do.	do.	29	11	10	260	. .	. . .
185	Do.	Beaver,	27	7	10	235	. . .	. . .
186	Do.	Blair,	42	12	10	290	. .	. . .
187	Do.	Bradford,	40	1	10	311	. .	. . .
188	Do.	Centre,	37	*a*9	11	226	. . .	. . .
189	Do. car builder,	Clinton,	42	25	10	285	. . .	. . .
190	Do.	Fayette,	52	15	10	289	. . .	. . .
191	Do.	Fulton,	27	.	10	265	. .	. . .
192	Do.	Lackawanna,	72	3	9	284	. . .	. . .
193	Do.	Lancaster,	50	1	9	260	. . .	. . .
194	Do.	Lawrence,	39	4	10	252	. .	. . .
195	Do.	Lehigh,	45	*a*15	11	283	. . .	. . .
196	Do.	Lycoming,	58	*a*5	10	200	. . .	. . .
197	Do.	Montgomery,	57	31	10	81	. . .	. . .
198	Do.	Montour,	51	20	10	275	. .	. . .
199	Do.	Northumberl'd,	28	1	10	187	. .	. . .

Notation marks: *a*, months; *k*, per m.; *e*, per hundred tons; *f*, per cwt.; *d*, per heat.

RETURNS—*Continued.*

Average daily earnings.	Earnings for 1880.	How often are wages paid?	FAMILY. Adults.	FAMILY. Children.	Earnings of family, exclusive of yourself, for the year.	Total earnings of the family, including yourself, for the year.	Total expenses for the year.	EXCESS OF— Earnings over expenses.	EXCESS OF— Expenses over earnings.	No. of return.
$1 44	$311 04	Monthly,	2			$311 04				134
2 85	475 95	do.	2	5	$219 05	695 00				135
*b*6 86	1,824 80	Two weeks,	2	4		1,824 80	$1,200 00	$624 80		136
2 87	706 62	Monthly,	2	3		706 02	706 02			137
*b*4 50	954 00	Two weeks,	2	2	300 00	1,254 00	900 00	354 00		138
*b*5 00	900 00	Monthly,	2	2		900 00	650 00	250 00		139
2 20	440 00	do.	2	1		440 00	294 00	146 00		140
*b*9 00	1,800 00	Two weeks,	2	3		1,800 00				141
*b*3 75	937 50	Monthly,	2	5		937 50				142
2 48	749 20	do.	2	3		719 20	487 28	231 92		143
2 00	374 00	do.	2	5	521 00	895 00				144
3 33⅓	1,040 00	Weekly,	2	6	364 00	1,404 00	1,085 00	319 00		145
*b*3 33⅓	1,050 00	do.	2	3		1,050 00	1,050 00			146
*b*3 20	800 00	Two weeks,	2	5		800 00	630 00	170 00		147
*b*3 08	770 00	do.	2	2		770 00	605 00	165 00		148
3 50	962 50	Monthly,	2	4	87 50	1,050 00	948 00	102 00		149
3 20	751 60	do.	2	2		751 60	650 00	101 60		150
6 12	1,425 96	do.	3			1,425 96	608 00	817 96		151
*b*5 25	1,233 75	Two weeks,	2	3		1,233 75	885 00	348 75		152
*b*5 00	1,000 00	do.	2			1,000 00	700 00	300 00		153
1 75	525 00	Weekly,	2	4		525 00	525 00			154
1 67	434 20	do.	2	2		434 20	407 80	26 40		155
2 00	600 00	On demand,	2	7	500 00	1,100 00	600 00	500 00		156
2 00	500 00	do.	2	3		500 00	500 00			157
2 20	682 00	Monthly,	2	2		682 00	616 00	66 00		158
1 35	300 00	do.	2	1		300 00	300 00			159
1 00	261 00	Weekly,	2	2		261 00	261 00			160
2 50	600 00	Monthly,	2	7	720 00	1,320 00	1,040 00	280 00		161
1 63	500 41		2	1		500 41	425 00	75 41		162
1 50	450 00		2	2		450 00	385 00	65 00		163
2 50	775 00	Monthly,	2	2		775 00	460 00	315 00		164
2 00	600 00		2	3		600 00				165
1 55	475 85		2	5		475 85	353 00	122 85		166
2 25	645 75	Semi-monthly,	2	2		645 75	496 00	149 75		167
3 34	1,002 00	Weekly,	2	4		1,002 00	1,002 00			168
2 17	585 00	do.	2	3		585 00	438 00	147 00		169
1 80	550 80	Semi-monthly,	2	3		550 80	643 40		$92 60	170
	900 00	Weekly,	2	1		900 00	800 00	100 00		171
2 50	500 00		1			500 00	300 00	200 00		172
1 75	390 25	Monthly,	2	1		390 25	291 50	98 75		173
1 98	73 26									
1 25	125 00	Weekly,	2	1	78 00	276 26	247 50	28 76		174
1 95										
1 25	250 00	Weekly,	2	9	492 00	742 00	506 00	236 00		175
1 70	525 30	Two weeks,	2	4		525 30	501 00	24 30		176
1 62	500 58	Monthly,	2	3		500 58	340 00	160 58		177
2 00	500 00	do.	2			500 00	595 00		95 00	178
1 44	501 12	do.	2	8	52 00	553 12	460 00	93 12		179
1 50	547 50	do.	2	5		547 50	500 00	47 50		180
2 00	580 00	do.	2	1		580 00	427 00	153 00		181
3 60	1,080 00	do.	2	3	20 00	1,100 00	535 00	565 00		182
1 75	420 00	Two weeks,	2	4	400 00	820 00	700 00	120 00		183
2 50	650 00		2	2		650 00	540 00	110 00		184
1 75	411 25	On demand,	2	1		411 25	411 25			185
2 55	739 50	Monthly,	2	4	364 00	1,103 50	646 00	457 50		186
2 25	699 75	do.	1			699 75	335 00	364 75		187
1 63	368 38	On demand,	2	2		368 38	284 25	84 13		188
3 00	855 00	Monthly,	2	3		855 00	670 00	185 00		189
2 25	659 25	do.	2	3	600 00	1,250 25	1,160 00	90 25		190
1 61	426 65	do.	1			426 65	340 50	86 15		191
1 50	426 00	do.	2			426 00	426 00			192
1 35	351 00	Weekly,	2	4		351 00				193
1 75	441 00	do.	2	4		441 00	423 00	18 00		194
1 80	509 40	Monthly,	2	4	68 10	577 50	577 50			195
90	180 00	Irregular,	2	2	40 00	220 00	135 00	85 00		196
1 50	121 50	Weekly,	2	3	338 50	460 00	475 00		15 00	197
1 75	481 25	Monthly,	2			481 25	481 25			198
1 75	327 25	Weekly,				327 25	300 00	27 25		199

EMPLOYEES'

Number of return.	Occupation.	County.	Age.	Years in present employ.	Hours worked per day.	Number of days employed during the year.	PIECE WORK. Price paid per—	PIECE WORK. Number of pieces constituting a day's work.
200	Carpenter,	Perry,	49	24	10	300		
201	Do. foreman,	Schuylkill,	45	28				
202	Carriage trimmer,	Chester,	31	10	10	277		
203	Do.	Union,	27	10	11	251		sleighs, 3
204	Caulker,	Allegheny,	53	8	10	189		
205	Chair-maker,	Erie,	35	*a*4	9	255	$0 02¾	backs, 50
206	Do.	Northampton,	43	*a*6	10	261	75	dozen, 2
207	Do.	Susquehanna,	58	5	10	230	16	dozen, 10
208	Cigar-maker,	Cumberland,	37	*a*20	12	250	*k*4 00	300
209	Do.	Fayette,	27	1	10	245	*k*3 50	700
210	Do.	Lancaster,	26	*a*2	10	260	*k*2 50	500
211	Cigar-packer,	Philadelphia,	46	14	10	312		3,000
212	Coachsmith,	Lancaster,	37	6	10	300		
213	Conductor, freight,	Lackawauna,	42	11		267		
214	Do. passenger,	Montgomery,	45	10	10	331		
215	Do. street cars,	Philadelphia,	26	*a*2	16			
216	Dyer,	Montgomery,	29	8	10	309		
217	Engineer,	Fayette,	40	2	13	351		
218	Do. stationery,	Huntingdon,	38	5	11	300		
219	Do.	Westmoreland,	29	5	12	330		
220	Firemen,	Monroe,	31	6	14	308		
221	Do.	Perry,	40	*a*19	10	308		
222	Glass-blower, bottles,	Allegheny,	32	3	9	225		dozen, 42
223	Do. chimney,	do.	36		8	135		chimneys, 600
224	Do. window,	do.	34	4	10	150	*l*36 to 1 85	
225	Do. do.	do.	47	9	10	160	8	74
226	Do.	Philadelphia,	31	*a*18	9	175		
227	Do. window glass,	Wayne,	34	3	10	200		
228	Harness-maker,	Dauphin,	34	9	10	308		
229	Do.	Lawrence,	43	8	10	175		
230	Laborer,	Berks,	33	10	12	360		
231	Do.	Blair,	53	6	10	182		
232	Do.	Chester,	44		10	250		
233	Do.	Mercer,	46	3	12	250		
234	Do.	Montour,	46	3		245		
235	Do.	Northampton,	43	2	10	300		
236	Do.	Perry,	25	5	11	243	14½	tons, 10
237	Do.	do.	23		10	198		
238	Do.	Westmoreland,	42	*a*5	10	207		
239	Machinist,	Allegheny,	52	1	10	308		
240	Do.	Clearfield,	45	11	10	255		
241	Do.	Clinton,	24	6	10	296		
242	Do.	Dauphin,	31	5	12	286		
243	Do.	Lancaster,	37	*a*4	10			
244	Do.	Lawrence,	34	15	10	300		
245	Do.	Philadelphia,	60			260		
246	Millwright,	Allegheny,	48	20	12	300		
247	Do.	Huntingdon,	65			250		
248	Do.	Jefferson,	56	*a*3	10	300		
249	Do.	Lycoming,	50		10	230		
250	Moulder, machinery,	Allegheny,	31	14	8	270		
251	Do.	Clinton,	43	14	10	225		
252	Do. car wheels,	Columbia,	39	9	10	278	12	20
253	Do.	Cumberland,	55	31	10	305		
254	Do.	Franklin,	64	20	10	275		
255	Do.	Lackawanna,	35	15	10	300		
256	Do.	Lehigh,	31	*a*7	10	250		
257	Do.	York,	36	15	10	250		
258	Ore miner, iron,	Berks,	47		10		*m*7	16
259	Do. do.	Chester,	42	3	10	300		
260	Do. do,	York,	39	9	10	300		
261	Do. do.	York,	40	1	10	308		
262	Painter, car,	Clinton,	45	14	10	306		
263	Do. house,	Fayette,	37	14	10	234		
264	Do. carriage, and trimmer,	Huntingdon,	27	4	10	200		
265	Pattern-maker,	Blair,	47	14	10	289		

a, Months. *k*, Per M. *l*, Per hundred feet. *m*, Per wagon.

RETURNS—*Continued.*

Average daily earnings.	Earnings for 1880.	How often are wages paid.	FAMILY. Adults.	FAMILY. Children.	Earnings of family, exclusive of yourself, for the year.	Total earnings of the the family, including yourself, for the year.	Total expenses for the year.	EXCESS OF Earnings over expenses.	EXCESS OF Expenses over earnings.	Number of return.
$1 84	$552 00	Monthly,	2	3		$552 00	$250 00	$302 00		200
	1,069 20	do.	1	6		1,069 20	1,647 00		$577 80	201
1 82	504 14	Weekly,	2	1		504 14	420 35	83 79		202
1 75	439 25	Quarterly,	2	3		439 25				203
2 62	495 18	Monthly,	2	5	$204 82	700 00	550 00	150 00		204
1 37	349 35	Weekly,	2			349 35	225 00	124 35		205
1 50	391 50	do.	2	1	156 00	547 50	455 00	92 50		206
1 60	368 00	Monthly,	2	2		368 00	335 00	33 00		207
1 20	300 00	Weekly,	2	2		300 00	300 00			208
2 45	600 25	do.	2	2		600 25	450 00	150 25		209
1 25	325 00	do.	2	3		325 00	325 00			210
2 34	730 08	do.	2	4	500 00	1,230 08	1,030 00	200 08		211
2 00	600 00	do.	2	1	50 00	650 00	461 00	189 00		212
2 51	670 17	Irregular,	2	1		670 17	498 70	171 47		213
2 86	946 66	Monthly,	2	5		946 66	846 00	100 66		214
2 00		Weekly,								215
2 30	710 70	Monthly,	2	3		710 70	460 00	250 70		216
1 65	579 15	do.	2	6		579 15	314 00	265 15		217
1 25	375 00	do.	2	5		375 00	325 00	50 00		218
1 90	627 00	do.	2	2		627 00	400 00	227 00		219
1 80	554 40	do.	2	1		554 40				220
4 50	462 00	do.	2	3		462 00	375 00	87 00		221
5 00	1,125 00	Weekly,	2	1		1,125 00	685 00	440 00		222
4 00	540 00	do.	2	3		540 00	540 00			223
6 00	900 00	do.	2	2		900 00	800 00	100 00		224
5 92	947 20	do.	2	3		947 20	600 00	347 20		225
4 00	700 00	do.	2	4		700 00	700 00			226
4 50	900 00	Two weeks,	2	8	100 00	1,000 00	746 00	254 00		227
1 75	540 00	Monthly,	2	1		540 00	224 00	316 00		228
1 65	288 75	Weekly,	2	3	104 00	392 75	400 00		7 25	229
1 14	410 40	Monthly,	2	1		410 40	410 40			230
1 10	200 20	do.	2			200 20				231
1 00	250 00	On demand,	2	4	26 00	276 00	262 00	14 00		232
1 25	312 50	Monthly,	2	5		312 50	312 50			233
1 04	254 80	do.	2	3	50 00	304 80	304 80			234
1 15	345 00	do.	2			345 00	250 00	95 00		235
1 45	352 35	do.	2			352 35	352 35			236
93	184 14	Weekly,	2			184 14	158 75	25 39		237
1 20	252 40	Monthly,	2	3		252 40	252 40			238
3 00	924 00	Semi-monthly,	2	5	514 80	1,438 80				239
2 75	701 25	On demand,	2	3	150 00	851 25	789 00	62 25		240
2 20	651 20	Monthly,	2			651 20	452 50	198 70		241
3 50	1,001 00	do.	2	2		1,001 00	900 00	101 00		242
1 50		Weekly,	2	2						243
2 67	801 00	Two weeks,	2	4		801 00	750 00	51 00		244
1 83	475 80	Weekly,	2	1	156 00	631 80				245
2 00	600 00	Monthly,	2	10	50 00	650 00	700 00		50 00	246
2 00	500 00	do.	2	2		500 00	300 00	200 00		247
2 00	600 00	On demand,	2	5	900 00	1,500 00	800 00	700 00		248
1 75	402 50	do.	2	2		402 50	402 50			249
2 40	648 00	Two weeks,	2	3		648 00	566 30	81 70		250
2 20	495 00	Monthly,	2	6		495 00	495 00			251
2 40	667 20	do.	2	2		667 20	386 00	281 20		252
2 69	820 45	do.	2	2		820 45	651 50	168 95		253
1 50	412 50	Weekly,	2	5		412 50				254
2 20	660 00	Monthly,	2	4		660 00				255
2 00	500 00	do.	2	4		500 00	377 00	123 00		256
1 40	350 00	Weekly,	2		150 00	500 00	360 00	140 00		257
1 12		Monthly,	2	2						258
1 25	375 00	do.	2	5		375 00	375 00			259
1 00	300 00	do.	2	1		300 00	360 00		60 00	260
2 30	708 40	do.	2	2	250 00	958 40	870 00	88 40		261
2 50	765 00	do.	2	5	240 00	1,005 00	940 00	65 00		262
2 50	585 00		2	3		585 00	425 00	160 00		263
2 50	500 00	Monthly,	1			500 00	250 00	250 00		264
2 25	650 25	do.	2	6		650 25				265

EMPLOYEES'

No. of return.	OCCUPATION.	COUNTY.	Age.	Years in present employ.	Hours worked per day.	Number of days employed during the year.	PIECE WORK.	
							Prices paid per—	Number of pieces constituting a day's work.
266	Pattern maker,	Northampton,	43	16	10	306		
267	Plasterer,	Cumberland,	30	11	10	200		
268	Printer,	Allegheny,	24	1	10	272		ems, 7,500
269	Do.	Dauphin,	64	3	10	260		
270	Do.	Erie,	63	*a*2	9		*k*26	ems, 6,000
271	Do.	Huntingdon,	26	6	9	307		
272	Do.	Mercer,	40	*a*6	10	234		ems, 8,000
273	Do. foreman comp. room,	Northampton,	35	19	10	300		
274	Railroad, mechanic,	Cumberland,	39	3	10	300		
275	Do. section boss,	Berks,	42	15	9	319		
276	Do.	Lackawanna,	52	12	10	288		
277	Do. foreman track repair,	Perry,	38	16	10			
278	Riveter,	Allegheny,	30	1	10	250		
279	Sawyer, circular,	do.	29	7	10	218		
280	Do.	do.	51	4	10	223		
281	Do.	Cambria,	42	4	10	288		
282	Shoe-maker,	Lackawanna,	63	45	12	288		
283	Do.	Schuylkill,	30	7	10	240		
284	Stone-cutter,	Perry,	29	1	10	300		
285	Stone-mason,	Crawford,	38		10	147		
286	Tanner,	Elk,	33	4	11	312		
287	Do.	Tioga,	29	5	11	300		
288	Teamster, boss,	do.	36	8	9	305		
289	Wagon-maker,	Forest,	32	4	11	300		
290	Watchman,	Allegheny,	47	8	12	365		
291	Watch-repairer,	Lackawanna,	38	6	10	307		
292	Weaver,	Delaware,	26	14	10	300	75	2
293	Do.	do.	32	13	10	300	1 03	2
294	Do. carpet,	Philadelphia,	36			260	09	yards, 20
295	Do. do.	do.	38	*a*2	12		09	yards, 15
296	Beamer,	Delaware,	43	12	10	288	50	4
297	Beamer and twister,	Philadelphia,	26	8	10	308		
298	Loom-fixer,	Northampton,	40	12	11	300		
299	Carder, foreman,	do.	64	30	11	238		

a, Months; k, per M.

RETURNS—*Continued.*

Average daily earnings.	Earnings for 1880.	How often are wages paid?	FAMILY. Adults.	FAMILY. Children.	Earnings of family, exclusive of yourself, for the year.	Total earnings of the family, including yourself, for the year.	Total expenses for the year.	EXCESS OF Earnings over expenses.	EXCESS OF Expenses over earnings.	No. of return.
$2 16	$660 96	Weekly,	2	5	$104 00	$764 96	$725 00	$39 96		266
1 59	300 00		2			300 00	233 00	67 00		267
1 75	476 00	Weekly,	1			476 00	211 00	265 00		268
2 10	546 00	Semi-monthly,	2	1		546 00	524 00	22 00		269
1 56		Weekly,	2							270
1 67	512 69	Monthly,	2	2		512 69				271
1 50	351 00	Weekly,	2	2		351 00	301 00	50 00		272
2 17	651 00	do.	2	4		651 00	646 00	5 00		273
1 33	399 00	Monthly,	2	2		399 00	379 15	19 85		274
1 13	360 47	do.	2	4		360 47	335 00	25 47		275
1 05	302 40	do.	2	7		302 40	321 00	18 60		276
1 67	600 00	do.	2	4		600 00	600 00			277
2 00	500 00	Weekly,	1			500 00	500 00			278
2 75	599 50	Monthly,	2	1		599 50	590 00	9 50		279
2 25	501 75	Weekly,	2	4	676 00	1,177 75	1,100 00	77 75		280
1 60	460 80	Monthly,	2	3		460 80	450 00	10 80		281
1 25	360 00	do.	1			360 00				282
1 50	360 00	Two weeks,	2			360 00				283
1 25	375 00	Weekly,	2	1		375 00	421 00	46 00		284
2 50	367 50		2	1	200 00	567 50	506 71	60 79		285
3 20	1,000 00	Monthly,	2	2		1,000 00	595 00	405 00		286
1 25	375 00	do.	2	2		375 00	300 00	75 00		287
2 12	646 60	do.	2	6		646 60	636 00	10 60		288
2 50	750 00	do.	2	1		750 00	748 00	2 00		289
1 80	657 00	Two weeks,	1			657 00				290
1 67	512 69	Weekly,	2	3	68 31	581 00	581 00			291
1 50	450 00	Monthly,	2			450 00	355 00	95 00		292
2 00	600 00	do.	2	2		600 00	540 00	60 00		293
1 80	468 00	do.	2	5		468 00	468 00			294
1 35		do.								295
2 00	576 00	do.	2	7	1,024 00	1,600 00	1,100 00	500 00		296
1 83	563 64	Weekly,	2	2		563 64	500 00	63 64		297
1 40	420 00	Monthly,	2	6	260 00	680 00	580 00	100 00		298
2 50	720 00	do.	2	2		720 00	630 00	90 00		299

PRICES OF GROCERIES, PROVISIONS, ETC., *compiled from employés' return in different sections throughout the State, December 31, 1880.*

LOCATION.	Flour per barrel	Flour per bag, (49 pounds.)	Tea per pound.	Coffee (best Rio) per pound.	Sugar (light brown) per pound.	Sugar (granulated) per pound.	Ham per pound.	Shoulder per pound.	Lard per pound.	Butter per pound.	Fresh beef per pound.	Other fresh meats per pound.	House rent per month.	Number of rooms.
Allegheny county.														
Allegheny City,	. .	$1 70	$0 75	$0 22	$0 10	$0 11	$0 15	$0 11	$0 11	$0 25	$0 15	$0 11	$7 00	2
Etna,	. .	1 65	60	22	9	12	12	9	11	30	12		10 00	4
Do.	. .	1 57	60	24	9	13	13	9	11	32	12½	10	6 00	3
McKeesport,	$6 72	1 60	60	21	9	11	11	9	11	30	12½			9
Do.	7 00	1 70	80	22	9	11	12	8	11	30	12½	16	. . .	5
Do.	7 00	1 75	80	23	10	11	10	9	10	30	12½	10		5
Do.	6 75	1 60	80	24	9	11	14	9	11	30	10		5 00	2
Do.	7 25		65	30	9		12½	. . .	10	35	12½	12½	. .	7
Mansfield Valley,	6 50	1 60	60	25	9	1	12	10	10	35	15	12½	. .	1
Do.	6 50		75	22	9	11	12	10	12	32	13	10	. . .	3
Do.	6 50	1 70	1 00	27	9	10	14	9	10	38	15	11	. . .	4
Do.		1 75	90	22	9	11	12½	10½	11	35	15	12		3
Pittsburgh,	.	1 80	1 25	32	10	12	16	.	10	32	15	13½	17 33	5
Do.	6 00	1 65	87½	25	9	10	14		9	35	12½			
Do.	6 00	1 55	75	22	10	. .	15	11	14	30	12	8	10 00	3
Do.	. . .	1 65	1 00	25	9	11	12½	8	12	35	15		8 00	2
Sharpsburg,	6 50	1 65	80	25	9	11	12	11	12	35	12½	9	. . .	6
West Elizabeth,	8 00	2 00	1 00	25	. . .		14	10	10	25	12½	.		3
Do.	8 00	2 00	1 00	25	11	15	15	11	12½	35				
Do.	. .	2 00	75	28	11	12½	12½	10	10	30	11	10	8 50	4
Armstrong county.														
Apollo,	. . .	1 57	1 00	20	9	11	13	11	10	18	12	10	10 00	7
Freeport,	. .	1 75	75	24	10	11	13	10	12	25	9	. .	. .	10
Leechburg,	. . .	1 60	1 00	27	8	9½	12½	. .	10	30	12½	. .	10 00	4
Rural Village,	5 50	1 50	1 00	22	10	12½	8	6	8	25	6	10	. . .	5
Beaver county.														
Rochester,	6 00	1 50	75	22	9	10	12½	10	12	32	15	11	5 00	3
Rock Point,	6 50	1 50	75	24	11	.	15	12½	12½	30	10	10	. . .	3
Bedford county.														
Pattonville,	5 00	1 35	40	28	11	13	14	8	8	20	8	9	. . .	7
Rays' Hill,	5 00	1 25	1 00	22	10	15	12	8	8	20	8	.	. . .	4
St. Clairsville,	5 60	. . .	. .	22	9	10	. .	. .	. . .	21	8	5	. . .	7
Berks county.														
Bechtelsville,	6 50	1 62	50	25	9	10	12	10	9	28	9	. .	6 00	6
Little Oley,	.	1 62	90	25	8		14	10	11	29	12		3 00	4
Molltown,	6 00	1 50	40	24	8	13	14	12	8	26	13	10	4 00	6
Monocacy,	6 50	1 75	80	25	8	11	12	9	11	33	14	11	4 00	
Blair county.														
Altoona,	. . .	1 65	80	25	9	10½	12	9	12	35	14	10	12 00	7
Bellwood,	.	1 50	50	20	10	12	13	8	11	28	16	7	6 00	6
Hollidaysburg,	5 60	1 45	60	25	10	12	12½	. .	12	28	15	14		
Yellow Springs,	6 00	1 50	50	25	10	13	15	12	12	25	10	8	5 00	4
Bradford county.														
Towanda,	7 50	1 90	70	28	9	11	12	9	12	25	13	12	8 33	12
Butler county.														
Forestville,	5 60	1 40	60	23	10	12	14	12	9	25	12	8	. . .	6
Cambria county.														
Cambria,	7 00	1 75	75	20	10	13	12½	8	12½	25	7	6	6 00	5
Gallitzin,		1 55	1 00	25	12		12	8	12	30	10		4 00	4
Hemlock,	7 00		60	24	10	12½	16	10	12	25	12	8	3 00	3
Lloydville,	. . .	1 60	60	30	12½	13	13½	11	13	30	10	9	5 00	4
Carbon county.														
Weissport,	. . .	1 70	1 20	26	9	13	18	14	12	25	14	10	6 00	5
Centre county.														
Centre Hall,	6 00	1 50	1 00	20	11	12	12	8	7	20	13	6½	.	5
Philipsburg,	6 40	1 60	1 00	25	11	25	14	9	11	30	13	10	6 00	5
Chester county.														
Avondale,	6 00	1 50	1 25	25	9	12	13	10	10	30	16	12	5 00	5

GROCERIES, PROVISIONS, ETC.—*Continued.*

LOCATION.	Flour per barrel.	Flour per bag, (49 pounds.)	Tea per pound.	Coffee (best Rio) per pound.	Sugar (light brown) per pound	Sugar (granulated) per pound	Ham per pound.	Shoulder per pound.	Lard per pound.	Butter per pound.	Fresh beef per pound.	Other fresh meats per pound.	House rent per month.	Number of rooms.
Chester co.—Contin'd														
Blue Rock,	$6 00	$1 60	$0 60	$0 25	$0 09	$0 11	$0 14	$0 11	$0 09	$0 28	$0 14			
Coatesville,	6 00	. . .	1 00	25	9	10⅔	12	10	10	40	16	$0 14	$4 33	5
Oxford,	7 40	. . .	80	30	9	11	14	10	11	34	14	12	8 00	7
Clearfield county.														
Clearfield,	. .	1 90	1 25	24	9	11	12½	9	12	30	14	12	6 00	6
Houtzdale,	6 50	1 63	80	25	10	12½	13	10	12½	30	13	10	. .	10
Morrisdale Mines,	6 20	1 55	60	28	10	13	13	10	10	35	13	. .	. .	5
Clinton county.														
Renovo,	. . .	1 85	75	26	10	12½	12	9	12½	32	14	.	10 00	6
Columbia county.														
Berwick,	. .	1 80	1 25	35	11	14	14	11	12	28	12	12	5 50	5
Mainville,	6 00	1 50	80	25	10	12	14	10	12	27	14	14	.	4
Jerseytown,	6 00	1 50	80	25	10	12	10	8	8	25	12	5½	2 25	7
Crawford county.														
Linesville,	6 00	1 50	50	20	10	11	10	8	8	25	5			
Meadville,	. .	1 70	63	22	. . .	10	12	9	11	26	8	9	. . .	4
Cumberland county.														
Boiling Springs,	5 70	1 44	60	25	10	13	15	12	8	28	10	8	. . .	4
Lisburn,	7 00	1 75	75	25	10	12	15	10	10	28	9	7	. .	1
Mechanicsburg,	6 00	1 50	75	25	9	12½	16	10	8½	28	13	12½	. .	7
West Fairview,	. . .	1 60	90	30	10	12½	13	9	12	25	12	. .	. .	7
Dauphin county.														
Fort Hunter,	6 40	1 60	. .	25	10	12	12	10	10	20	10	9	10 83	8
Harrisburg,	7 00	1 75	75	32	10	12	16		10	30	15	15	12 00	6
Millersburg,	. . .	1 60	60	25	9	11	12	8	10	25	10	8		
Steelton,	6 40	1 60	.	30	9	12	12½	. .	11	30	15	12	11 50	6
Wiconisco,	5 25	. .	. .	28	10	9	.	6	10	28	9	. . .	. . .	6
Delaware county.														
Aston Mills,	8 50	. . .	80	32	10	10⅔	1 ½	10	13	45	16	15	7 00	6
Fernwood,	9 00	. . .	50	30	. .	10⅔	12	. .	12	38		15	7 00	6
Elk county.														
Ridgway,	. .	1 90	60	28	9	11	12	11⅓	. .	30	16	12	. .	7
Erie county.														
Erie,	6 00	1 55	75	22	10	12	15	10	9	30	14	10	. .	7
Union City,	.	1 45	50	23	9	11	12	8	11	25	12	10	2 00	
Fayette county.														
Bellevernon,	6 00		60	20	10	.	14	12	8	30	12½	.	. . .	4
Brownsville,	6 50		1 00	25	12⅔	13	12⅔	8	10	25	15	12⅔	. .	1
Connellsville,	6 00	1 60	1 00	25	10	12½	15		10	28	12½	10	. . .	6
Fayette City,	6 00	1 50	80	28	10	12½	17	14	10	25	12½	7	3 00	3
Forest county.														
Brookston,	. . .	1 87	1 00	30	10	12⅓	14	. . .	12	36	12	. . .	. . .	5
Franklin county.														
Greencastle,	. .	1 50	80	20	10	12½	10	7	8	20	12	12		
Fulton county.														
Webster Mills,	5 00	1 25	80	20	10	12	12½	10	8	12	10	8	2 00	
Wells' Tannery,		1 60	. . .	. .	10	12	. . .	10	. .	25	7			
Huntingdon county.														
Coalmont,	.	1 60	60	25	11	. . .	14	10	12	20	10	. .	2 00	2
Alexandria,	6 40	1 60	60	23	10	13	12½	9	10	25	7	6	6 25	7
Huntingdon,		1 60	1 00	24	10	12	14	8	10	25	15	14	5 00	4
McConnellstown,	6 25	1 60	75	24	10	12⅓	12⅔	8	8	20	12	8		8
Robertsdale,	6 00	1 55	60	28	12	14	12	10	10	25	8	8	4 00	4
Saltillo,	. .	1 50	. .	25	10	12½	10	8	8	20	7	. . .	. . .	4
Jefferson county.														
Brockwayville,	7 20	1 80	75	25	8	13	12⅛	10	8	25	8	6	6 25	

GROCERIES, PROVISIONS, ETC.—*Continued.*

LOCATION.	Flour per barrel.	Flour per bag (49 pounds.)	Tea per pound.	Coffee, (best Rio,) per pound.	Sugar, (light brown,) per pound.	Sugar, (granulated,) per pound.	Ham per pound.	Shoulder per pound.	Lard per pound.	Butter per pound.	Fresh beef per pound.	Other fresh meats per pound	House rent per month.	Number of rooms.
Lackawanna county.														
Carbondale,	$3 25	. . .	$0 60	$0 28	$0 09	$0 10½	$0 12½	$0 10	$0 10	$0 28	$0 14	$0 12		
Do.	6 75	$1 69	60	40	10	12	9	8	10	30	10	14	$8 00	
Do.	8 00	2 25	50	35	9	11	2	8	12½	28	12½		8 00	8
Dunmore,	7 00	1 75	50	30	10	12	14	9	10	30	12½	14	. . .	4
Gouldsboro',	. . .	2 38	65	25	11	13	14	12	13	25	12	12		
Hyde Park,	7 00	1 75	40	25	9¾	10½	12	9	11	25				
Do.	8 00	.	65	25	10	11	12	9	12	30	13	. . .	. . .	7
Olyphant,	6 75	. .	60	25	11	.	11	7	10	32	12	.	.	5
Providence,	7 00		70	25	9½	10½	11	8	10	28	12	7	6 00	6
Ransom,	7 50	2 00	1 00	30	10	11	13	9	12	30	16	12		7
Scranton,	6 50	1 63	50	25	9	10	11	8	11	28	12	. .	6 00	6
Lancaster county.														
Lancaster,	. . .	1 30	60	33	8	11	18	12	10	25	12	12		7
Do.	. .	1 90	60	30	8	11	20	12	10	35	12	. . .	16 66	10
Litiz,	6 25		. .	32	7	12	12	9	7	22	15			
Manheim,	.	1 50	50	25	9	12	12	10	12	20	14		7 00	6
Mountville,	6 00	1 60	80	28	10	12	15	9	10	25	12	15	3 12	4
Lawrence county.														
New Castle,	.	1 38	65	20	8	12	11	7	9	30	12	.		4
Do.	. .	1 42	75	23	9	18	12	10	10	25	11	9	13 25	4
Lehigh county.														
Allentown,	6 25	1 60	60	25	8	11	13	8	13	28	14	14	4 00	3
Catasauqua,	.	1 62	80	25	9	12	14	11	12	38	16	. .	7 00	4
Luzerne county														
Kingston,	7 00		50	25	9	12½	14	11	12½	32	14	12½	. . .	6
Do.	8 00		1 00	30	10	11	14	13	10	30	14	14		5
Pehley P. O.,	7 25	1 82	60	30	10	12½	15	13	2½	32	16	18	5 75	5
Pittston,	7 00	1 75	60	25	10	13	13	11	11	37	16	11	. .	
Plains,	7 50	1 87	60	35	10	12	13	11	12	32	14	12	6 50	4
Wilkes-Barre,	7 00	. . .	50	30	10	12	13	10	12	30	14	. .	5 50	
Lycoming county.														
Collomsville,	. . .	1 50	80	24	9	14	12	10	12	28	13		3 34	4
Jersey Shore,	6 00	1 50	1 00	20	9	12½	10	8	10	25	12	8	5 42	6
Picture Rocks,	. . .	1 60	90	25	11	12	13		10	22	10	.	. .	9
McKean county.														
Clermont,	8 50	. .	80	50	11	14	13	11	12½	35	12	10	4 50	5
Mercer county.														
Greenville,	6 00	1 50	60	22	10	11	12½	8	12½	24	12½	10	8 00	6
Neshannock,	5 75	1 50	60	25	11	12½	12½	10	10	25	10	10	4 16	4
Pleasant,	5 75	1 44	75	22	10	12½	14	10	12½	25	12½	12½	2 00	3
Sharon,	. .	1 50	60	23	10	12	14	.	12	30	12		2 08	
Stoneboro',	5 50	1 35	80	20	9	11	12½	8	11	24	10	10	3 50	4
Monroe county.														
E. Stroudsburg,	. . .	1 75	. . .	24	8	10	. . .	. .	10	25	10	. . .	. .	10
Montgomery county.														
Bridgeport,	. .	1 80	. . .	25	9	11	13	10	10	35	14	. .	.	7
Conshohocken,	7 00	. .	50	32	8	10	14	12	12	40	13	18	10 00	7
Douglassville,	. . .	. . .	40	25	9	11	14	10	11	30	12	9	10 00	8
Norristown,		1 40	80	30	10	11	12		11	40	22	20	8 00	5
Pottstown,	6 50	1 63	1 25	25	9	13	13	11	13	35	15	14		
Montour county.														
Danville,	6 00	1 50	70	28	9	12	12½	10	11	30	12½	12½	5 00	6
Northampton county.														
Easton,	. . .	2 00	75	22	9	11	12½	8	11	30	10	9		4
South Bethlehem,	.	1 80	70	25	9	13	12½	10	12½	32	15	11	6 00	5
South Easton,	.	2 00	1 00	28	10	12	14	11	14	32	16	16	. . .	5
Northumberland co.														
Excelsior,	7 00	1 75	75	25	10	14	12	10	11	30	12	10	3 09	4
Locust Gap,	7 25	1 82	52	35	10	12	14	8	11	33	14	. . .	3 50	2
Mahanoy,	. . .	.		25	8	12	10	8	7	20	6	. .	. . .	6

GROCERIES, PROVISIONS, ETC.—*Continued.*

LOCATION.	Flour per barrel	Flour per bag. (49 lbs.)	Tea per pound.	Coffee, (best Rio,) per pound.	Sugar, (light brown,) per pound.	Sugar, (granulated,) per pound.	Ham per pound.	Shoulder per pound.	Lard per pound.	Butter per pound.	Fresh beef per pound.	Other fresh meats per pound.	House rent per month.	Number of rooms.
Northumberland Co.														
Milton,		$1 40	$0 50	$0 22	$0 09	$0 11	$0 12	$0 10	$0 11	$0 30	$0 12	$0 10		
Mt. Carmel,	$7 00	1 75	50	26	09	12	16	09	12	30	14	14	.	8
Shamokin,	7 00	1 75	1 00	25	10	13	12	10	12	30	12	11	11 50	8
Perry County.														
Duncannon,	.	1 76	1 00	30	9	12	14	10	10	25	10	7	4 50	6
Marysville,	6 40	1 60	75	30	10	12	12	8	10	25	12	10	5 00	6
Newport,	6 00	1 50	80	25	10	12	11	9	9	22	12	12	4 25	5
Philadelphia County														
Germantown,		2 20	60	35	9½	11	13	. . .	11	43	20		10 00	6
Manayunk,	8 50	2 20	60	38	9	10½	13	12	12	40	20	16	9 50	5
Philadelphia,	8 25	2 25	50	30	8	10	14	. .	11	45	12	11	16 00	6
Schuylkill County.														
Girardville,		1 81	70	36	10	12	14	8	12	33	16	9	8 00	5
Orwigsburg,	6 00	1 50	65	25	9	12	15	12	11	32	12	10	. .	5
Pottsville,	6 00		75	24	9	12	13	8	10	28	14	11	.	9
Schuylkill Haven,	6 00	1 50	60	25	8	12	14	8	10	28	12	10	5 00	6
Silver Creek,	6 50	. . .	50	24	10			8	12	32	16	.	2 00	
St. Clair,	7 00		50	40	10	11½	15	7	12	30	15	13	6 00	6
Tower City,	6 50	1 65	60	25	10	12	14	8	12	32	12	.	6 67	6
Snyder County.														
Beaver Springs,	. . .	1 50	87	25	9	12	14	9	7	20	6	8	. .	4
Somerset County.														
Keystone Junction,	. . .	1 63	1 00	28	14	16	16	12½	12½	30	10			
Myersdale,	6 00	1 50	90	25	10	15	14	8	10	25	14	10	8 33	8
Sand Patch,	6 00	1 50	75	25	10	12	12	8	10	23	12	. .	. .	4
Sullivan County.														
Bernice,	7 60	1 90	75	25	10	12½	12½	10	14	25	10	7	2 00	4
Sonestown,	. . .	2 50	60	25	9	12	13	8	10	25	4	7		
Tioga County.														
Antrim,	7 00	1 75	70	25	10	13	12½	10	12	28	12½			
Arnot,	8 00	2 00	60	40	11	12	14	12	11	30	14	10	6 00	7
Fall Brook,	7 25		65	30	10½	13	15	12	16	25	8	6	3 25	3
Osceola,	6 00	1 50	50	25	9	11	13	8	12	25	6			9
Union County.														
Mifflinburg,	. . .	1 35	1 00	25	10	12	10	8	6	25	12	. .	4 25	5
Warren County.														
Lottsville,	. . .	1 50	1 00	30	10	12	12	11	10	20	5	. .	. . .	8
Sugar Grove,	. . .	1 60	75	25	9	11	12½	10	12½	22	5	6½		
Tidioute,	8 00	2 00	80	25	10	12	12	8	10	30	12	12	. .	7
Wayne County.														
White Mills,	10 00	.	52	32	10	12½	15	.	14	28	14	10	8 00	6
Westmoreland County.														
Blackburn,		1 75	70	25	9	12½	11¾	10	11	30	12½	.	.	5
Irwin Station,	6 25	. .	55	23	9	10	12	8	11	30	10	10	5 00	4
Irwin Station,	6 80		75	25	10		11	6	8	30	10			
Larimer Station,	6 50	. . .	60	24	9	12½	12½	8	10	30	10	11	6 67	6
Latrobe,	5 50	1 40		25	10	12	12½	8	12	28	12	10	5 00	3
Paulton,	. . .	1 50	55	23	10	12	12	9	10	28	8	8		
Webster,	6 40	1 60	80	23	10	12	11	9	10	25	12	. .		3
West Newton,	. .	1 75	70	22	10	12½	12½	10	10	30	12½			
Wyoming County.														
Forkston,	6 00	1 60	50	23	10	12½	12	10	10	22	7	8	. .	
York County.														
Dillsburg,	6 00	1 50	75	28	9	12	15	10	9	25	12	11	12 50	6
Glen Rock,	5 75		75	22	9	12	13	9	8	23	11	10	3 33	4
York,	. .	1 80	. .	25	9	11	13	11	10	24	11	. . .	8 34	

SCHOOL STATISTICS.

TABULAR STATEMENT OF COUNTIES FOR THE SCHOOL YEAR ENDED JUNE 7, 1880.

COUNTIES.	SCHOOLS.		TEACHERS.				SCHOLARS.					TAX AND RATE PER CENT.		
	Whole number.	Average number of months taught.	Number of males.	Number of females.	Average salaries of males per month.	Average salaries of females per month	Number of males	Number of females.	Average number attending school.	Average percentage of attendance.	Cost per month.	Number of mills levied for school purposes.	Number of mills levied for building purposes.	Total amount of tax levied for school and building purposes.
Adams,	168	5.33	112	57	$28 00	$25 02	3,795	3,476	5,020	78	$0 68	1.81	1	$34,670 47
Allegheny,	1,079	8.83	244	857	46 12	33 53	29,285	29,036	39,661	82	79	2.10	1.16	663,160 56
Armstrong,	270	5.33	186	94	30 86	26 04	6,971	6,257	4,315	81	62	4.27	2.62	32,016 84
Beaver,	208	6	108	105	37 81	29 22	4,845	4,488	6 760	79	86	6.43	4.73	45,195 73
Bedford,	234½	5.13	196	43	27 18	23 30	5,168	4 299	6,270	81	65	3 20	2.08	37,837 16
Berks,	573	6.49	377	201	28 56	25 90	14,556	12,730	18,958	84	68	1.73	1.08	152,873 39
Blair,	263	6.59	134	70	35 68	33 78	5,202	4,965	7,449	84	80	6.26	3	64,926 76
Bradford,	469	6.46	234	4 8	25 39	16 52	7,834	6,999	9,445	80	63	6.06	3.33	62,623 96
Bucks,	286	7.81	166	129	32 24	30 88	8,147	6,663	9,063	81	70	4.31	2.17	172,665 52
Butler,	260	5.77	203	171	30 78	25 12	6,301	6,425	9,447	83	65	5.87	4	63,038 60
Cambria,	228½	5.78	122	111	30 71	26 16	5,299	4,794	6,358	76	70	8.74	4.45	41.778 78
Cameron,	37	5.86	11	26	39 46	28 31	557	612	846	81	1 03	10.12	6.25	6,857 70
Carbon,	142	7.11	88	58	38 73	28 27	4,034	3,841	5,065	80	66	9.40	5.55	48 723 73
Centre,	221	5.19	169	57	28 57	25 82	4,856	4,175	6,569	79	76	3.94	2.56	49,801 56
Chester,	360	8.08	82	360	36 16	33 28	9,285	8,663	10,7.6	81	81	3.07	1.04	142,052 47
Clarion,	230	5.55	156	142	29 85	2. 91	5,674	5,058	7,020	81	62	7.57	6 22	47.979 13
Clearfield,	226	5.32	126	105	32 49	26 74	4,867	4,716	6 628	79	75	5.18	3.25	38.874 67
Clinton,	146	5.69	91	67	29 09	25 16	3.122	2,969	4,116	77	78	7.62	4.30	32,119 14
Columbia,	188	5.93	158	77	27 38	18 63	4.392	4,094	5,133	78	63	5.60	1.67	40,176 79
Crawford,	452	6.06	216	562	25 17	18 79	8.686	7,866	11,841	86	81	3.54	2.41	106,714 56
Cumberland,	235	6.60	147	90	33 71	29 08	5,522	4,990	7,348	84	78	4.07	2.29	65,624 46
Dauphin,	316	6.71	2 3	111	32 78	28 20	8,709	7,808	10,828	79	70	4.32	2.47	123,788 86
Delaware,	176	9.33	25	151	47 79	39 68	4,834	4.653	5,727	83	92	2.65	1.37	101.161 05
Elk,	72	6.62	29	60	40 25	28 05	1,292	1,186	1.628	82	1 30	7.45	3	19,868 46
Erie,	414	7.76	165	459	32 92	21 16	8,132	7,555	10,391	84	72	2.72	1.03	122,913 76
Fayette,	254	5.58	171	92	35 55	29 32	6,810	5,908	8,107	81	68	3.46	4.90	54,275 68
Forest,	47⅛	6.08	16	36	28 92	27 67	654	644	799	75	1 21	6.10	2	8,001 71
Franklin,	270	6	198	79	32 68	28 89	6,704	5,793	8,185	80	75	3.25	1.58	67,403 46

Fulton,	72	5	50	23	19 01	19 29	1,536	1,357	1,734	77	54	5.67	4	8,406 39
Greene,	187¼	5.07	142	52	27 73	25 65	4,043	3,323	5,319	81	72	3.95	2.10	31,351 08
Huntingdon,	2.6⅝	5.19	173	61	26 49	23 35	4,773	4,371	6,028	79	70	6.48	3.96	43,570 88
Indiana,	249	5.22	174	82	30 10	27 04	5,701	5,248	7,706	81	71	4.14	2.40	45,170 37
Jefferson,	169	5.28	120	94	27 31	22 42	4,038	3,513	5,245	80	65	9.65	5.72	29,869 55
Juniata,	104	5.16	78	28	28 55	23 23	2,621	2,333	3,613	83	64	6.29	2.80	19,603 21
Lackawanna,	253	8.62	84	301	34 42	22 46	8,755	9,618	11,540	75	61	7.75	4	133,673 51
Lancaster,	575	6.87	312	270	40 31	33 74	15,469	13,926	21,101	87	83	2.21	1.01	187,980 02
Lawrence,	169	6.43	120	122	29 84	24 07	4,084	3,691	5,644	83	68	6.71	3.48	41,841 50
Lebanon,	203	6.07	165	38	30 04	28 35	4,697	4,063	5,357	82	74	3.91	1.83	55,143 74
Lehigh,	298	6.44	224	79	34 84	25 61	8,037	7,468	10,482	87	66	1.67	1.15	102,663 57
Luzerne,	476	7.86	229	307	38 59	27 66	14,249	14,744	16,998	78	66	8.22	4.75	208,882 75
Lycoming,	309	5.92	194	132	29 95	24 80	6,921	6,314	9,118	82	84	3.69	2.25	81,913 52
McKean,	135	6.31	36	139	44 58	25 16	2,681	2,561	3,495	80	90	9.97	6.76	39,433 59
Mercer,	301	7	183	305	31 14	20 72	7,150	6,031	9,686	82	73	2.62	2.63	78,628 56
Mifflin,	109	5.97	76	39	30 36	26 92	2,652	2,339	3,404	85	71	5.38	2.40	26,242 76
Monroe,	130	5.23	113	19	23 32	19 76	2,610	2,238	3,314	75	62	7.30	3	13,636 30
Montgomery,	363	7.92	191	166	38 93	33 75	9,963	8,789	11,921	80	74	2.83	1.68	147,285 61
Montour,	74	6.43	41	44	26 49	21 09	1,862	1,695	2,251	76	66	4.32	3.25	15,841 57
Northampton,	302	6.96	239	72	32 51	25 76	8,223	7,239	11,158	82	64	1.33	1.06	107,920 98
Northumberland,	248	6.27	175	79	31 61	27 05	6,557	6,343	8,266	76	61	5.53	5.01	62,229 34
Perry,	182	5.31	146	37	26 31	24 02	4,626	3,540	5,406	83	64	3.43	3.47	27,248 01
Pike,	58	6.25	26	45	21 58	18 69	1,368	1,277	1,412	71	74	7.50	3.50	8,650 39
Potter,	141	5.95	80	141	23 78	16 94	1,822	1,769	2,215	80	1 00	11.38	7.62	19,778 03
Schuylkill,	533	8	297	242	41 18	29 28	16,708	15,866	20,198	75	68	5.18	2.62	223,682 70
Snyder,	111	5.07	106	12	22 01	20 83	2,735	2,292	3,176	77	54	3 48	2 95	18,295 27
Somerset,	23⅛	5.02	206	31	24 85	21 78	4,745	3,998	5,809	79	69	4.90	3.30	33,053 12
Sullivan,	63	5.28	31	50	23 53	18 36	979	886	1,211	77	90	8.90	3.33	7,929 98
Susquehanna,	303	6.66	166	336	26 77	15 66	5,330	4,426	6,194	81	73	7.26	4.07	38,884 64
Tioga,	296	6.62	141	341	29 44	19 48	5,901	5,436	7,072	80	71	6.19	3.96	53,942 23
Union,	88	5.89	72	83	27 64	25 87	2,135	1,997	2,877	81	79	2.87	3.50	17,419 88
Venango,	266	6.86	136	234	39 63	25 83	6,278	5,847	8,101	84	82	4.88	2.23	109,961 60
Warren,	193	6.19	66	207	40 71	22 79	3,354	3,162	4,620	83	1 06	3.37	1.78	43,006 24
Washington,	315	5.90	158	161	33 44	28 38	6,586	6,160	8,708	80	88	1.68	.90	73,663 36
Wayne,	218	6.53	98	184	24 07	18 10	4,349	4,119	5,439	79	63	3.71	3	35,406 55
Westmoreland,	384⅕	5.45	283	122	35 08	31 68	9,603	8,585	12,317	79	71	3	2.05	84,570 54
Wyoming,	114	6.79	67	183	21 19	13 14	2,198	1,956	2,820	80	58	2.46	2.25	13,953 89
York,	427½	5.33	321	106	28 05	26 39	11,589	9,725	14,683	79	61	1.73	1.53	95,666 77
	16,585	6.25	9,655	9,650	$31 36	$25 14	401,851	368,493	569,246	80	$0 74	5.04	2.99	$4,818,594 36
Philadelphia,	2,070	10	77	1,993	157 25	44 31	83,056	83,965	92,381	55	80	. . . .	. . . .	1,469,807 56
	18,655	6.67	9,732	11,643	$32 36	$28 42	484,907	452,403	661,627	77	$0 75	5.04	2.99	$6,288,401 92

17 STATISTICS.

TABULAR STATEMENT OF SCHOOL STATISTICS—*Continued.*

COUNTIES.	RECEIPTS.			EXPENDITURES.				RESOURCES AND LIABILITIES.	
	State appropriation.	From taxes and all other sources, except State appropriation.	Total receipts.	Cost of school-houses. purchasing, building, renting, &c.	Paid for teachers' wages.	Paid for fuel and contingencies, fees of collectors, &c., and all other expenses.	Total expenditures.	Resources.	Liabilities.
Adams,	$7,174 54	$36,503 71	$43,678 25	$4,788 61	$23,607 90	$9,047 36	$37,443 87	$790 768 21	$789 03
Allegheny,	64,906 33	742,011 16	806,917 49	74,522 74	491,778 47	207,320 44	773,021 65	607,411 96	788,233 11
Armstrong,	10,011 23	60,952 00	70,963 23	8,644 57	39,866 13	14,894 10	63,404 80	12,234 74	18,171 26
Beaver,	9,205 88	72,639 73	81,845 61	7,993 43	43,353 13	21,875 85	73,222 41	12,378 68	31,116 33
Bedford,	7,931 96	43,735 53	51,667 49	7,643 71	29,079 57	8,285 58	45,011 86	9,153 51	235 96
Berks,	25,868 20	208,980 54	234,848 74	46,444 18	104,288 69	38,552 89	189,255 76	17,175 75	52,284 16
Blair,	7,724 49	87,765 07	90,489 56	16,844 14	47,778 34	17,444 67	82,067 12	9,625 58	29,132 43
Bradford,	13,743 73	84,054 13	97,797 86	11,915 95	49,875 60	20,012 25	81,803 80	15,784 25	12,571 33
Bucks,	16,854 27	115,533 70	132,387 97	14,489 78	71,469 26	28,812 89	111,771 93	16,452 22	8,425 59
Butler,	16,839 90	67,583 99	84,423 89	9,409 95	42,213 03	20,143 31	71,766 29	17,2 8 75	10,489 06
Cambria,	6,532 94	85,177 58	91,710 52	22,761 94	40,956 87	16,115 01	79,833 82	10,224 58	23,618 89
Cameron,	2,007 53	7,660 18	9,667 71	1,431 34	6,857 26	1,426 20	9,714 80	6,424 57	593 03
Carbon,	7,898 31	54,671 72	61,570 03	3,140 64	35,176 48	19,257 95	57,575 07	4,552 84	50,405 01
Centre,	8,917 72	49,412 55	58,330 27	5,422 54	31,415 89	17,125 88	53,964 31	14,417 35	2,486 22
Chester,	14,335 97	175,039 92	189,375 89	24,311 29	101,590 35	42,934 49	168,866 13	15,896 69	48,931 36
Clarion,	8,230 75	54,217 70	62,448 45	9,855 23	33,727 53	11,498 20	55,080 96	26,677 26	3,878 03
Clearfield,	7,128 78	59,940 39	67,069 17	9,240 21	33,587 14	19,405 36	62,232 71	30,678 61	14,956 23
Clinton,	7,868 50	39,575 36	47,443 86	4,212 40	24,125 19	13,290 20	41,627 79	11,873 59	12,204 58
Columbia,	5,675 95	45,547 06	51,223 01	3,754 93	30,207 21	12,604 08	46,566 22	5,876 80	7,272 03
Crawford,	25,200 67	127,808 47	153,009 14	21,067 66	76,521 12	35,806 01	127,335 39	18,346 63	58,246 14
Cumberland,	8,821 57	79,738 30	88,559 87	8,308 99	50,432 08	18,798 26	77,539 33	12,235 69	5,733 99
Dauphin,	17,183 98	136,394 30	153,578 26	12,718 95	89,113 13	41,802 63	143,634 71	7,408 45	105,750 74
Delaware,	11,142 14	119,768 07	130,910 21	14,141 71	69,591 86	40,704 73	124,438 30	8,208 17	56,644 79
Elk,	1,577 60	21,165 13	22,742 73	2,425 02	15,105 42	2,746 95	20,277 39	19,152 32	4 64
Erie,	16,240 82	140,917 10	157,157 92	17,753 17	87,565 75	41,721 03	147,039 95	21,499 62	24,101 75
Fayette,	13,498 67	71,565 68	85,064 35	6,259 35	44,998 98	22,163 65	73,421 98	15,618 49	41,886 86
Forest,	865 33	10,141 91	11,007 24	810 02	7,537 80	1,572 93	9,920 75	3,101 58	547 13
Franklin,	9,280 04	74,687 96	83,968 00	11,366 56	52,441 09	14,289 76	78,097 41	8,119 96	25,353 42
Fulton,	2,392 05	9,531 40	11,923 45	1,289 05	6,831 00	1,916 24	10,136 29	2,000 40	
Greene,	6,050 31	35,853 46	41,903 77	5,854 01	24,691 48	7,340 80	37,889 29	7,847 20	328 67
Huntingdon,	7,944 65	52,228 81	60,173 46	10,621 41	30,244 42	13,309 40	54,175 23	7,835 74	22,660 88
Indiana,	9,862 63	56,243 40	66,046 03	7,897 51	36,112 62	15,450 86	59,460 39	13,642 01	6,795 21
Jefferson,	6,717 35	35,283 51	42,000 86	4,903 77	22,585 02	9,846 81	37,336 50	7,642 72	17,208 11

Juniata,	4,473 45	19,325 32	23,798 77	1,577 86	14,008 83	6,087 34	21,674 03	4,578 51	1,477 99
Lackawanna,	15,683 16	168,851 78	184,534 94	19,684 24	96,039 62	31,799 67	147,523 53	25,360 14	861 43
Lancaster,	24,982 30	237,994 92	262,977 22	32,871 25	155,458 96	54,327 39	242,157 60	47,214 24	34,728 43
Lawrence,	7,157 68	52,036 68	59,194 36	10,372 06	30,844 56	13,348 48	54,565 10	6,742 48	2,759 46
Lebanon,	6,696 27	66,518 11	73,214 38	7,768 79	37,731 10	14,988 76	60,488 65	9,390 82	21,680 71
Lehigh,	16,908 52	126,906 79	142,8 5 31	13,974 64	59,571 66	48,688 19	122,234 49	13,549 32	408,805 98
Luzerne,	24,834 03	231,420 75	256,254 78	27,678 10	140,851 54	66,702 53	234,632 17	45,403 18	28,881 63
Lycoming,	11,677 32	90,713 27	102,390 59	7,844 36	58,811 75	25,677 86	92,333 97	23,153 87	18,526 62
McKean,	2,317 50	68,342 10	70,6 9 60	19,085 91	25,817 63	15,212 13	60,115 67	20,98 10	16,660 55
Mercer,	13,667 31	105,531 73	119,599 04	16,893 35	57,277 16	21,991 56	96,152 07	25,230 33	13,990 40
Mifflin,	2,465 22	27,203 42	29,668 64	3,057 67	17,863 66	7,596 53	28,517 86	3,708 20	19,276 99
Monroe,	2,805 90	18,416 95	21,222 85	2,167 10	14,554 28	2,988 81	19,705 19	3,202 87	563 00
Montgomery,	16,776 41	199,360 52	216,136 93	48,993 18	104,151 37	43,945 87	197,035 42	14,868 15	54,179 44
Monlour,	3,084 43	19,263 27	22,347 70	1,603 78	12,776 13	5,317 29	19,697 20	2,929 21	9,387 41
Northampton,	9,714 24	135,208 21	144,922 45	16,657 35	70,173 04	37,114 84	123,925 23	10,313 92	117,493 04
Northumberland,	12,294 44	65,063 61	77,358 05	9,374 11	47,002 89	18,450 70	74,827 70	17,055 97	9,863 46
Perry,	6,766 65	34,732 32	41,498 97	3,936 33	23,444 50	9,316 11	36,686 94	7,321 73	11,617 41
Pike,	2,788 59	11,031 44	13,8 0 03	2,594 43	7,476 34	3,167 10	13,276 87	885 59	3,805 79
Potter,	3,801 31	25,774 42	29,575 73	3,739 97	15,420 98	4,710 28	23,871 23	17,939 66	416 57
Schuylkill,	33,777 02	335,910 38	369,693 40	46,123 68	164,586 85	131,100 28	341,810 81	30,011 13	168,870 66
Snyder,	3,584 89	18,145 01	21,729 90	3,957 88	11,353 56	4,000 47	19,311 91	4,518 46	1,594 28
Somerset,	6,244 52	38,975 58	45,220 05	6,301 69	27,063 28	6,513 00	39,877 97	6,550 27	7,474 04
Sullivan,	2,131 40	9,613 04	11,744 44	2,211 6	6,427 00	1,400 48	10,039 09	2,859 33	74 37
Susquehanna,	8,254 45	46,796 38	55,050 83	5,713 26	34,402 32	10,727 17	50,842 75	6,815 85	3,405 16
Tioga,	9,372 85	69,695 04	79,067 89	8,823 05	40,814 99	17,615 13	67,253 17	14,295 48	35,959 32
Union,	3,326 02	21,611 26	24,9 7 28	865 46	14,395 69	6,122 69	21,383 24	4,892 24	4,839 12
Venango,	8,584 28	137,729 55	139,313 83	20,585 85	68,614 89	53,025 51	142,226 16	13,703 80	70,545 17
Warren,	7,107 99	54,636 90	61,741 89	5,295 13	31,526 12	15,532 99	52,354 24	10,611 37	8,324 52
Washington,	10,114 79	87,653 19	97,767 98	11,854 68	57,219 12	18,124 50	87,198 30	15,764 32	1,493 76
Wayne,	10,397 96	40,859 38	51,257 34	4,752 79	29,849 61	9,917 08	44,509 48	7,311 04	7,504 44
Westmoreland,	18,788 02	104,653 90	123,411 92	17,500 87	67,197 39	19,374 82	103,972 99	17,271 13	21,052 95
Wyoming,	3,816 32	19,623 64	23,439 96	3,270 91	12,288 12	5,056 16	20,595 19	3,716 83	1,348 56
York,	18,989 12	119,164 73	138,153 85	14,263 54	67,448 55	46,891 83	128,603 92	11,785 67	26,917 21
	$7,299 13	$5,859,069 06	$6,576,508 19	$869,4 6 51	$3,506,011 82	$1,584,365 92	$5,899,874 25	$1,425,213 16	$2,6 8,495 84
Philadelphia,	171,732 23	1,469,867 56	1,641,539 79	143,198 57	1,004,185 05	322,423 94	1,469,807 56		
	$889,031 36	$7,328,816 62	$8,217,847 98	$962,695 08	$4,510,196 87	$1,906,789 86	$7,369,681 81	$1,425,213 16	$2,618,495 84

STATEMENT OF THE SCHOOL SYSTEM SINCE ITS ESTABLISHMENT

YEAR.	Whole number of districts.	Number of districts paid.	Whole number of schools.	Number of schools yet required.	Time schools were open.	Whole number of teachers.	Average salaries of male teachers per month.	Average salaries of female teachers per month	Whole number scholars.	Average number of scholars attending school.	Average number in each school.	Average cost of teaching each scholar per month.
1854, . . .	1,425	. . .	10,186	. . .	5 m. 2 d.	11,967	$29 31	$12 81	488,692	. . . . .	38	41
1855, . . .	1,445	. . . .	10,459	650	5 "	12,143	23 29½	14 89½	529,009	361,316	49	45
1856, . . .	1,610	. . . .	10,697	633	5 " 1	12,357	23 29	15 85¾	523,754	365,103	48	43
1857, . . .	1,677	. . . .	10,956	604	5 " 1	12,484	24 00	16 60	514,247	38 ,326	49⅛	49
1858, . . .	1,709	. . . .	11,281	587	5 " 8	12,828	24 25	17 22	569,880	387,139	50½	46½
1859, . . .	1,755	. . . .	11,485	523	5 " 10	13,058	24 26	17 79	575,251	375,687	5 ⅛	48
1860, . . .	1,763	1,711	11,577	494	5 " 10¼	13,003	24 20	18 11	585,639	366,961	50⅛	51
1861, . . .	1,788	1,741	11,910½	466	5 " 12	14,297	25 68	19 71	596,765	384,752	5 ⅛	53
1862, . . .	1,808	1,750	11,990	445½	5 " 10	14,380	23 81	18 55	615,087	388,063	51⅕	49
1863, . . .	1,820	1,757	12,161	362	5 " 9	14,442	23 94	18 56	631,499	397,722	52	50
1864, . . .	1,825	1,755	12,566	416½	5 " 12	14,668	25 42	20 16	637,785	399,532	50¾	58
1865, . . .	1,837	1,735	12,547	420	5 " 14	14,286	31 82	24 21	629,587	396,701	50	68
1866, . . .	1,863	1,800	12,773½	509	5 " 15	14,841	34 34	26 31	649,519	413,009	51	72
1867, . . .	1,839	1,833	13,061	. . .	5 " 16¾	15,209	35 87	27 51	660,165	414,537	50½	85
1868, . . .	1,918	1,845	13,234½	. . .	5 " 19⅓	15,504	37 38	28 76	666,3 6	438,323	50	90
1869, . . .	1,971	1,921	13,558½	. . .	5 " 20⅛	15,670	38 18	29 89	686,769	477,775	50½	93
1870, . . .	2,001	1,941	13,832	. . .	5 " 21	16,097	39 63	30 55	695,052	484,912	50⅓	93
1871, . . .	2,023	1,945	14,161⅓	. . .	5 " 21⅓	16,842	40 03	31 12	700,040	495,632	49½	98
1872, . . .	2,029	1,950	14,415½	. . .	6 " 22	16,784	40 55	31 93	699,802	484,127	48½	99
1873, . .	2,050	1,988	14,675½	. . .	6 " 6⅞	17,459	41 58	32 44	694,096	489,393	47⅓	95
1874, . . .	2,079	2,010	14,978½	. . .	6 " 8⅛	17,664	41 88	33 33	716,728	468,309	47⅞	93
1875, . . .	2,089	1,847	15,315½	. . .	6 " 19	18,104	40 03	31 03	740,094	472,283	48⅕	92
1876, . . .	2,103	1,825	15,619	. .	6 " 19	18,314	38 72	30 42	749,314	495,743	47⅓	91
1877, . . .	2,144	1,866	15,850¼	. . .	6 " 38	18,7 9½	36 34	28 90	751,032	497,038	47⅓	88
1878, . . .	2,186	6 7	16,087⅓	. . .	6 " 17	18,912½	34 54	27 35	771,015	515,198	48	82
1879, . . .	2,168	2,152	16,3 9	. . .	6 " 37	19,153	32 59	26 07	766,878	495,918	47	79
1880, . . .	2,192	. . . .	16,585	. .	6 " 25	19,305	31 35	25 14	770,349	509,246	47	74

UNDER THE PRESENT LAW, EXCLUDING PHILADELPHIA.

State appropriations paid.	Tax levied.	Number of mills on dollar levied for school purposes.	Number of mills on dollar levied for building purposes	Received from collector.	Cost of school-houses, including buildings, renting, &c., &c.	Cost of instruction.	Fuel and contingencies.	Year.
$156,389 25	$1,167,119 32	. . . .	. . . .	. . . . .	$256,735 92	. . . . .	. . . . .	1854
159,554 17	1,401,300 15	. . . .	. . .	$1,127,992 61	266,198 76	$1,041,571 96	$110,383 19	1855
164,330 50	1,693,844 15	5.5	3.25	1,371,706 14	332,125 37	1,145,730 32	140,615 29	1856
164,723 55	1,880,143 07	5.72	3.3	1,534,732 32	444,285 56	1,137,357 92	172,572 01	1857
188,646 00	2,009,437 00	5.71	3.46	1,554,780 64	454,343 53	1,325,992 65	162,670 98	1858
186,841 12	2,039,648 66	5.53	3.17	1,621,379 00	531,413 85	1,404,159 35	167,721 08	1859
193,503 34	2,015,785 20	5.43	3.35	1,659,383 23	448,416 28	1,442,171 70	209,956 38	1860
209,813 97	2,108,487 44	3.25	5.40	1,783,114 48	496,124 67	1,436,063 00	223,497 39	1861
210,752 40	1,965,164 91	4.75	3.47	1,756,307 33	355,796 99	1,367,181 33	232,337 31	1862
211,784 60	1,980,474 26	4.90	3.03	1,797,347 36	394,767 35	1,498,040 01	250,556 52	1863
216,057 03	2,143,348 20	5.09	3.27	2,016,310 17	488,517 69	1,698,664 01	309,527 30	1864
210,134 03	2,437,610 37	5.89	3.63	2,318,069 18	374,459 97	1,990,777 83	410,246 26	1865
233,463 67	3,013,057 33	6.56	4.53	2,801,759 32	596,669 69	2,217,521 70	458,317 61	1866
239,813 19	3,616,285 23	7.25	5.04	3,489,237 31	985,152 55	2,483,512 93	601,087 21	1867
218,521 87	4,016,919 12	7.53	5.51	4,314,028 52	1,357,726 99	2,019,109 93	642,218 88	1868
307,718 00	4,433,946 66	7.63	6.30	5,068,316 72	1,194,860 21	2,839,444 00	727,624 05	1869
321,200 00	4,731,049 86	7.76	5.39	5,684,997 51	2,560,137 42	3,010,690 33	807,713 82	1870
318,451 34	5,016,801 73	7.71	5.58	6,023,451 65	3,006,194 41	3,183,418 86	799,275 48	1871
429,152 65	5,229,024 69	7.27	5.06	5,438,636 89	2,535,637 39	3,221,121 78	863,738 96	1872
475,322 71	5,543,935 23	7.5	4.3	6,671,949 93	1,477,831 00	3,424,979 91	*1,756,111 73	1873
521,345 13	5,787,833 95	7.55	5.02	6,808,917 69	1,600,131 62	3,596,094 47	*1,652,651 94	1874
533,625 13	5,983,004 90	6.33	4.14	7,247,293 63	1,722,103 54	3,755,399 63	*1,961,341 60	1875
728,207 19	6,003,443 31	6.27	3.89	6,918,8 1 03	1,245,387 23	3,826,987 12	*2,006,833 88	1876
723,784 82	5,627,943 65	5.95	3.75	6,623,273 04	961,915 02	3,742,728 80	*1,948,570 56	1877
723,082 57	5,239,646 25	5.42	3.30	6,229,714 59	877,382 06	3,651,883 00	*1,817,934 11	1878
497,030 76	4,923,874 62	5.08	3.12	6,282,110 78	878,803 93	3,544,552 72	1,672,927 20	1879
717,297 13	4,818,591 36	5.04	2.99	5,859,009 06	809,486 51	3,506,011 82	1,584,365 92	1880

* Includes fees of collectors and treasurers, salaries to secretaries, debt and interest, and all other expenses.

UNITED STATES AND TERRITORIES.

HISTORICAL AND STATISTICAL TABLE *of the United States and Territories, showing the area of each in square miles and in acres; the date of organization of Territories; date of admission of new States into the Union, and the population of each State and Territory, at the taking of the last census in 1880.*

[From the Annual Report of the Commissioner of the General Land Office.]

CIVIL DIVISIONS.	Act organizing Territory.	U. S. STATUTES.		Act admitting State.	U. S. STATUTES.		AREA OF STATES AND TERRITORIES.		Number of acres surveyed up to June 30, 1878.	Area remaining unsurveyed on June 30, 1878.	Population in 1880.
		Vol.	Page.		Vol.	Page.	In square miles.	In acres.			
THE THIRTEEN ORIGINAL STATES.											
New Hampshire,							9,280	5,939,200			346,984
Massachusetts,							7,800	4,992,000			1,783,012
Rhode Island,							1,306	835,840			276,528
Connecticut,							4,750	3,040,000			622,683
New York,							47,000	30,080,000			5,083,810
New Jersey,							8,320	5,324,800			1,130,983
Pennsylvania,							46,000	29,440,000			4,282,786
Delaware,							2,120	1,356,800			146,654
Maryland,							11,124	7,119,360			934,632
Virginia,							38,348	24,542,720			1,512,806
North Carolina,							50,704	32,450,560			1,400,047
South Carolina,							34,000	21,760,000			995,622
Georgia,							58,000	37,120,000			1,539,048
STATES ADMITTED.											
Kentucky,				Feb. 4, 1791,	1	189	37,680	24,115,200			1,648,708
Vermont,				Feb. 18, 1791,	1	191	10,212	6,535,680			332,286
Tennessee,				June 1, 1796,	1	491	45,600	29,184,000			1,542,463
Maine,				Mar. 3, 1820,	3	544	35,000	22,400,000			648,945
Texas,				Dec. 29, 1845,	9	108	274,356	175,587,840			1,591,574
West Virginia,				Dec. 31, 1862,	12	633	23,000	14,720,000			618,443
PUBLIC LAND STATES AND TERRITORIES. *States.*											
Ohio,				April 30, 1802,	2	173	39,964	25,576,960	25,576,960		3,198,239
Louisiana,	Mar. 3, 1805,	2	331	April 8, 1812,	2	701	41,346	26,461,440	25,232,044	1,229,396	940,103
Indiana,	May 7, 1800,	2	58	Dec. 11, 1816,	3	399	33,809	21,637,760	21,637,760		1,978,362
Mississippi,	April 7, 1798,	1	549	Dec. 10, 1817,	3	472	47,156	30,179,840	30,179,840		1,131,592
Illinois,	Feb. 3, 1809,	2	514	Dec. 3, 1818,	3	536	55,414	35,465,093	35,465,093		3,078,769
Alabama,	Mar. 3, 1817,	3	371	Dec. 14, 1819,	3	608	50,722	32,462,115	32,462,115		1,262,794
Missouri,	June 4, 1812,	2	743	Mar. 2, 1821,	3	645	65,350	41,824,000	41,824,000		2,168,804

Arkansas,	Mar. 2, 1819,	3	493	June 15, 1836,	5	50	52,198	33,406,720	33,406,720	. . . . .	802,564
Michigan,	Jan. 11, 1805,	2	309	Jan. 26, 1837,	5	144	56,451	36,128,640	36,128,640	. . . . .	1,636,331
Florida,	Mar. 30, 1822,	3	654	Mar. 3, 1845,	5	742	59,268	37,931,520	30,103,796	7,827,724	267,351
Iowa,	June 12, 1838,	5	235	Mar. 3, 1845,	5	742	55,045	35,228,800	35,228,800	. . . . .	1,624,620
Wisconsin,	April 20, 1836,	5	10	Mar. 3, 1847,	9	178	53,924	34,511,360	34,511,360	. . . . .	1,315,480
California,	. . . . .	.	.	Sept. 9, 1850,	9	452	157,801	100,992,640	46,347,402	54,645,238	864,686
Minnesota,	Mar. 3, 1849,	9	403	Feb. 26, 1857,	11	166	83,531	53,459,840	39,172,415	14,287,425	780,806
Oregon,	Aug. 14, 1848,	9	323	Feb. 14, 1859,	11	383	95,247	60,975,360	21,127,862	39,847,498	174,767
Kansas,	May 30, 1854,	10	277	Jan. 29, 1861,	12	128	80,891	51,770,240	51,770,240	. . . . .	995,966
Nevada,	Mar. 2, 1861,	12	209	Mar. 21, 1864,	13	30	1 2,090	71,737,600	11,538,890	60,198,710	62,265
Nebraska,	May 30, 1854,	10	277	Feb. 9, 1867,	14	391	75,995	48,636,800	39,936,807	8,699,993	452,433
Colorada,	Feb. 28, 1861,	12	178	Mar. 3, 1875,	18	474	104,500	66,880,000	22,182,899	44,697,101	194,649
Territories.											
Wyoming,	July 25, 1868	15	178	. . . . .	. . .	. . . .	97,883	62,645,120	8,101,049	54,544,071	20,788
New Mexico,	Sept. 9, 1850,	9	446	. . . . .	. . .	. . . .	121,201	77,568,640	8,471,880	69,096,760	118,430
Utah,	Sept. 9, 1850,	9	453	. . . . .	. . .	. . . .	84,476	54,064,640	8,960,385	45,104,255	143,906
Washington,	Mar. 2, 1853,	10	172	. . . . .	. . .	. . . .	69,994	44,796,160	13,821,545	30,974,615	75,120
Dakota,	Mar. 2, 1861,	12	239	. . . . .	. . .	. . . .	150,932	96,596,480	21,459,442	75,137,068	135,180
Arizona,	Feb. 24, 1863,	12	664	. . . . .	. . .	. . . .	113,916	72,906,240	5,281,737	67,624,503	40,441
Idaho,	Mar. 3, 1863,	12	808	. . . . .	. . .	. . . .	86,294	55,228,160	6,834,069	48,394,151	32,611
Montana,	May 26, 1864,	13	85	. . . . .	. . .	. . . .	143,776	92,016,640	10,543,827	81,472,813	39,157
Alaska,	July 27, 1868,	15	240	. . . . .	. . .	. . . .	577,390	369,529,600	. . .	369,529,600	40,441
Indian Territory,	. . . . .	. . .	. . .	. . . . .	. . .	. . . .	68,991	44,154,240	27,003,990	17,150,250	* . . . .
District of Columbia,	July 16, 1790,	1	130	}	. . .	. . . .	60	38,400	. . . . .	. . . . .	177,638
	Mar, 3, 1791,	1	214	}							
Total,	. . . . .	. . .	. . .	. . . . .	. . .	. . . .	3,580,242	2,291,355,048	724,311,477	1,090,461,171	50,152,866

* No census taken.

POPULATION OF THE UNITED STATES AT EACH CENSUS, FROM 1800 TO 1880.

[From the Reports of the Superintendents of the Census.]

STATES AND TERRITORIES.	1880.		1870.		1860.		1850.		1840.		1830.		1820.		1810.		1800.	
Alabama,	17	1,262,794	16	996,992	13	964,201	12	771,623	12	590,756	15	309,527	19	127,901				
Arkansas,	25	802,564	26	484,471	25	435,450	26	209,897	25	97,574	27	30,388	25	*18 14,255				
California,	24	864,686	24	560,247	26	379,994	29	92,597										
Colorado,	35	194,649	4	39,864	4	34,277												
Connecticut,	28	622,683	25	537,454	24	460,147	21	370,792	20	309,978	16	297,675	14	*100 275,148	9	261,942	8	251,002
Delaware,	37	146,654	34	125,015	32	112,216	30	91,532	26	78,085	24	76,748	22	72,749	19	72,674	17	64,273
Florida,	34	267,351	33	187,748	31	140,424	31	87,445	27	54,477	25	34,730						
Georgia,	13	1,539,048	12	1,184,109	11	1,057,286	9	906,185	9	691,392	10	516,823	11	*4 340,985	11	252,433	12	162,686
Illinois,	4	3,078,769	4	2,539,891	4	1,711,951	11	851,470	14	476,183	20	157,445	24	*49 55,162	23	12,282		
Indiana,	6	1,978,362	6	1,680,637	6	1,350,428	7	988,416	10	685,866	13	343,031	18	147,178	21	24,520	20	5,641
Iowa,	10	1,624,620	11	1,194,020	20	674,913	27	192,214	28	43,112								
Kansas,	20	995,966	29	364,399	33	107,206												
Kentucky,	8	1,648,708	8	1,321,011	9	1,155,684	8	982,405	6	779,828	6	687,917	6	*182 564,135	7	406,511	9	220,955
Louisiana,	22	940,103	21	726,915	17	708,002	18	517,762	19	352,411	19	215,739	17	*484 152,923	18	76,556		
Maine,	27	648,945	23	626,915	22	628,279	16	583,169	13	501,793	12	399,455	12	*66 298,269	14	228 705	14	151,719
Maryland,	23	934,632	20	780,894	19	687,049	17	583,034	15	470,019	11	447,040	10	407,350	8	380,546	7	341,548
Massachusetts,	7	1,783,012	7	1,457,351	7	1,231,066	6	994,514	8	737,699	8	610,408	7	*28 523,159	5	472,040	5	422,845
Michigan,	9	1,636,331	13	1,184,059	16	749,113	20	397,654	23	212,267	26	31,639	26	*131 8,765	24	4,762		
Minnesota,	26	780,806	28	439,706	39	172,023	33	6,077										
Mississippi,	18	1,131,592	18	827,922	14	791,305	15	606,526	17	375,651	22	136,621	21	75,448	20	40,352	19	8,850
Missouri,	5	2,168,804	5	1,721,295	8	1,182,012	13	682,044	16	383,702	21	140,455	23	*29 66,557	22	20,845		
Nebraska,	30	452,434	35	122 993	35	28.841												
Nevada,	38	62,265	37	42,491	36	6,857												
New Hampshire,	31	346,984	31	318,300	27	326,073	22	317,976	22	284,574	18	269,328	15	*139 244,022	16	214,460	11	183,858
New Jersey,	19	1,130,983	17	906,096	21	672,035	19	489,555	18	373,306	14	320,823	13	*149 277,426	12	245,562	10	211,149
New York,	1	5,083,810	1	4,382,759	1	3,880,735	1	3,097,394	1	2,428,921	1	1,918,608	1	*701 1,372,111	2	959,049	3	589,051
North Carolina,	15	1,400,047	14	1,071,361	12	992,622	10	869,039	7	753,419	5	737,987	4	638,829	4	555,500	4	478,103
Ohio,	3	3,198,239	3	2,665,260	3	2,339,511	3	1,980,329	3	1,519,467	4	937,903	5	*139 581,295	13	230,760	18	45,365

Oregon,	36	174,767	36	90,923	34	52,465	32	13,294										
Pennsylvania,	2	4,282,786	2	3,521,951	2	2,906,215	2	2,311,786	2	1,724,033	2	1,348,233	3	*1,951 1,047,507	3	810,091	2	602,365
Rhode Island,	33	276,528	32	217,353	29	174,620	28	147,545	24	108,830	23	97,199	20	*44 83,015	17	76,931	16	69,122
South Carolina,	21	995,622	22	705,606	18	703,708	14	668,507	11	594,398	9	581,185	8	502,741	6	415,115	6	345,591
Tennessee,	12	1,542,463	9	1,258,520	10	1,109,801	5	1,002,717	5	829,210	7	681,904	9	*52 422,771	10	261,727	15	105,602
Texas,	11	1,592,574	19	818,579	23	604,215	25	212,592										
Vermont,	32	332,286	30	330,551	23	315,098	23	314,120	21	291,948	17	280,652	16	*15 235,966	15	217,895	13	154,465
Virginia,	14	1,512,806	10	1,225,163	5	1,596,318	4	1,421,661	4	1,239,797	3	1,211,405	2	*250 1,065,116	1	974,600	1	880,200
West Virginia,	29	618,443	27	442,014														
Wisconsin,	16	1,315,480	15	1,054,670	15	775,881	24	305,391	29	30,945								
The States,	.	49,369,595		38,115,641	.	31,183,744	. .	23,067,262		17,019,641		12,820,868	. .	*4,631 9,600,783	.	7,215,858	. .	5,294,390
Arizona,	6	40,441	9	9,658														
Dakota,	3	135,180	8	14,181	6	4,837												
District of Columbia,	1	177,638	1	131,700	2	75,080	2	51,687	1	43,712	1	39,834	1	33,039	1	24,023	1	14,093
Idaho,	8	32,611	7	14,999														
Montana,	7	39,159	6	20,595														
New Mexico,	4	118,430	2	91,874	1	93,516	1	61,547										
Utah,	2	143,906	3	86,786	3	40,273	3	11,380										
Washington,	5	75,120	5	23,955	5	11,594												
Wyoming,	9	20,788	10	9,118														
The Territories,	. .	783,271	. .	442,730	. .	259,577		124,614		43,712	. .	39,834	. .	33,039	. .	24,023	. .	14,093
On public ships in service of the United States,	.	. . .		. . . . .		. . . . .		. .		6,100		5,318						
The United States,		50,152,866		38,558,371		31,443,321	.	23,191,876		17,069,453	.	12,866,020	. .	*4,631 9,633,822	. .	7,239,881		5,308,483

* All other persons, except Indians not taxed.

NOTE.—The narrow column under each census year shows the order of the States and Territories when arranged according to magnitude of population in the aggregate or in each class.

BUILDING AND LOAN ASSOCIATIONS.

By JOHN H. KERR, Esquire.

The corporations known as building and loan associations, have now become an important factor in the financial and industrial progress of the Commonwealth. They are creatures of legislative enactment, born of necessity, and supply a want that no other savings institution or banking company can meet. Though of comparatively recent growth, they are now in successful operation in almost every county in the State. Their aggregate capital reaches many millions of dollars, and thousands of comfortable homes, through them, have been provided for the wage-workers and persons of limited means.

Owing to their anomalous features, unique and exceptional in the law of corporations, their purpose, to a greater or less extent, has been misconceived and their workings wholly misunderstood, not only by the business community, but likewise by the State authorities and the courts. The latter at first looked with disfavor upon them, because of the high premiums and supposed excessive rates of interest charged to the borrower, and legalized under the act of Assembly of the 12th of April, 1859, seemingly overlooking the fact that these associations are mutual joint-stock companies, in which each stockholder is at the same time both a lender and a borrower, and if he pays usurious interest, he shares in the profits of his own and his co-stockholders' loans. As showing the gradual change in the judicial mind towards them, it is only necessary to refer to the language of Judge Lowrie, in Kuppert *vs.* The Gutteuberg Building Association, as reported in 6 Casey, page 468, and compare it with the *dicta* of later decisions. In this case, Judge Lowrie said:

"Our judicial experience often reveals to us instances of great individual cruelty, but it has not yet revealed to us any institutions more cruel in theory than these building associations."

In Beckert *vs.* The Uniontown Building Association, reported last year in 7 Norris, page 216, Chief Justice Sharswood gives expression to a truer interpretation of the theory and spirit of these associations, and one more in consonance with the experience of those familiar with their practical results, when he utters the following: "A building and loan association is a species of partnership for dealing in money. Thus it will be seen that the borrower at usury is himself also a lender at usury, and if he can by economy and self-denial manage to make his payments, is sure to come out in the end a gainer. It would be very unjust to those who thus make their

payments regularly, if the court, from sympathy for those who have fallen behindhand, should refuse to enforce the obligation. Thousands of these associations have been organized and been wound up, without their names ever appearing in the dockets of the courts, and millions of dollars have been accumulated from the savings of scanty wages. However it may be elsewhere, Philadelphia has become emphatically a city of comfortable homes for the poor, by means of these organizations."

I. The purpose of a building and loan association is to enable its members to accumulate a fund from the weekly payment of dues or instalments upon stock, to be loaned out again to such of its members as desire to borrow, for the purpose of building homesteads. It will be perceived that such an association is no rival of either deposit or savings banks, who lend to parties who have already accumulated capital, or acquired property. It deals only with those who, from their earnings, expect to acquire a home during the lifetime of the association. The former deal with the paid-up capital of the past, the latter with the earnings of the future. The building and loan association therefore is *sui generis*, occupies a place of its own, deals with parties who would have no dealings at all but for it, creates its own business, builds up homes with capital that never would have had existence but for it, and as its practical results develop the mechanic and laborer, through its discipline of economical and industrious habits into a new class of capitalists, who but for it would still be poor and dependent, and thus adds to the wealth and prosperity of the community and the State.

II. The peculiar and distinctive characteristics of such an association, differing from all other corporations, are—

(1.) The capital stock is never fully paid up until the association, or at least the series, is ready to be wound up, and no dividends are ever declared on said stock.

(2.) The stockholder stands in the two-fold relation of stockholder and depositor. The money paid in his stock is, at the same time, a deposit, and he may, by giving thirty days' notice of withdrawal, cease to be a stockholder, withdraw his deposit, and thus become a creditor of the corporation, and as such acquire a priority of right in the distribution of its assets in the final dissolution over those who still remain as stockholders.

(3.) Its whole capital consists of the instalments paid in on stock, and the profits accruing from lending the same, and its earnings are limited to such profits.

(4.) Its business is with its own members alone, and is limited to loans to them on bonds and mortgages on real estate or lease-holds of long term, and in purchasing and afterwards selling such real estate only as it may itself put up at sheriff sale on its own foreclosed mortgages.

III. Like all things human, building and loan associations are dependent on an honest administration of their business for successful results. As their members are generally the inexperienced, they are the more easily entrapped and robbed of their hard earnings by designing men, and proper

guards by legislative enactment should be made for their protection. Such as requiring that the treasurer should be a freeholder, and that his bond should be approved by the court or some equally protective measure.

Hundreds of associations have been conducted from their inception to their termination without the loss of a dollar. Can so much be said in favor of any bank or savings institution in the State? Whenever any association of this kind has suffered loss, the cause has been in most cases attributable to one of two things, namely: Either to the purchase of large tracts of real estate for purposes of speculation, contrary to law and in direct defiance of statutory prohibition, and therefore *ultra vires;* or to the withdrawal of the greater number of the stockholders under the permission of the law, and as a consequence, depleting the treasury, absorbing all the money paid in from week to week by the maintaining stockholders, leaving no money to be loaned out, and thus defeating the very purpose of its organization, viz: that of a *building* and *loan* association. In the opinion of the writer, the radical defect in the laws relating to building and loan associations is, in the unrestricted privilege given to each stockholder to withdraw the money paid in on his stock whenever he may desire to do so. As the borrowers cannot withdraw without paying off their mortgages, inasmuch as in most instances the stock is pledged for the payment of the mortgage debt, undue advantage is thus given to the non-borrowers. The very members who, if their intention is to remain non-borrowers, are in the association for purposes of speculation, and not for the purpose of using the funds for building homesteads as contemplated by the law. If the law should be so modified that not more than one half of the money paid in on stock could be withdrawn, the other half to remain as fixed capital stock; or if only a certain proportion could be withdrawn each year, unless the directors allowed a greater amount, the danger of the non-borrowing members wrecking the association at will, would not be so imminent.

IV. Until within the past few years it has been the policy of our legislation to exempt building and loan associations from the payment of bonus tax upon their capital. From what has been written, the reasons for this exemption are obvious. In the first place these associations are composed of the working masses of limited means, each of whom is endeavoring in this way to provide for himself from his scanty earnings a comfortable homestead. In the next place every homestead thus erected is liable to and pays State, county, and municipal taxes. The aggregate of the capital stock and earnings of said association is thus transmitted into property equivalent in value that is subject to taxation. There are no dividends declared on said stock, and whatever earnings there are, are made off the shareholders and divided among them. They have no means of making money off other people.

By the act entitled An act to provide for the incorporation and regulation of certain corporations, approved the 29th of April, 1874, under which the said associations are incorporated, by the forty-fourth section thereof,

they are expressly exempted from the payment of a bonus tax. Prior to this, the act of 13th May, 1871, construed the general revenue act of May 1, 1868, as not applying to building and loan associations. The act of 10th of April, 1879, relating to said associations by section eight thereof again expressly exempts them from said tax. But owing to the fact that the general revenue act of 7th June, 1879, was passed a few weeks later than the last mentioned act, it is contended that these associations are liable to the payment of said tax. A large number of cases are now pending in the courts of Dauphin county on appeals from assessments of this tax, and should it be held that under the law as it now exists that these associations are liable, it is to be hoped for the reasons above stated that the Legislature will pass the act now pending for their exemption and give such a construction to the revenue act as shall set this question at rest.

We have no hesitation in saying that should these associations be compelled to pay this tax, not only the successful operation of those already in existence will be seriously impaired, but the number to be organized in the future will thereby be greatly decreased if they be not wholly driven out of existence.

We have thus very briefly stated the purpose, practical workings, and results of building and loan associations. If properly conducted we think there can be no doubt that they may be made beneficial adjuncts to our financial and savings institutions, a great blessing to the poor man, and, as a logical sequence of both, add wealth and prosperity to the community and the State. The rents paid by the poor man to the landlord may without other payments, if appropriated to the payments of dues on stock, in one of these associations in six to eight years purchase for him a homestead that he may indeed gather his family together under his own vine and fig tree with none to molest him or make him afraid. * * * *

The origin of building and loan associations is attributed to Scotland, about the year 1815, under the auspices of the Earl of Selkirk. From there it was soon afterwards introduced into the English manufacturing districts. Parliament, in 1836, passed a law authorizing the establishment of societies, "for the purpose of enabling the members to erect and purchase dwelling-houses, or acquire other leasehold estate, but it shall be mortgaged to the society until the amount or value of the shares drawn on shall be repaid, with interest, and all other appropriate payments." The Registrar of England reported, in 1878, the names of nine hundred and seven (907) societies in Great Britain and Ireland, with a membership of 288,818. The assets of these societies was £25,761,220.

From their inception up to the present, it is estimated that under their operations 60,000 comfortable houses have been erected in Philadelphia alone, and have enabled 25,000 house-holders to pay off mortgages that probably would otherwise be foreclosed. Through the economical habits they were instrumental in forming, it is estimated that $100,000,000 have been invested within the city limits, which, were it not for them, might

possibly have been squandered in dissipation and by improvidence. They have been the means of making 80,000 owners of real estate, and 80,000 tax-payers, thus giving Philadelphia the preëminent title of being the "City of Homes." The benefits accruing are not enjoyed simply by the head of the family, but permeates through the entire household, in the enjoyment by wives and children of homes exclusively their own.

There were nine hundred and eighty-eight (988) building and loan associations registered in the Auditor General's Department in the fiscal year ended November 30, 1879. The number registered in 1880 was twenty-nine (29), making a total of 1,017. The registration does not by any means give an idea of the number in existence throughout the State. There are over 600 in Philadelphia, and upward of 1,500 in the State, which, if the law of 1879 shall remain in force, will be demonstrated in time to come. The delay in registration is doubtless prompted by the same spirit of reluctance manifested in the meager and partial returns to the Bureau, upon the ground and with the fear that a full report of their prosperity may be the means of making them subjects of taxation, and thus impair their efficiency in the future.

In December, 1880, the Bureau, desirous of collecting information in reference to these associations, prepared a blank, asking information as to number of members, capital stock, receipts, expenditures, &c., and directed the same to the secretaries of the associations throughout the State, accompanied by the following circular:

DEPARTMENT OF INTERNAL AFFAIRS,
BUREAU OF INDUSTRIAL STATISTICS,
HARRISBURG, Pa., *December 1, 1880.*

DEAR SIR: I would most respectfully request you to fill up the enclosed blank for the year ending June 30, 1880, or the latest date for which an annual statement of the condition of the association has been made, and return in inclosed envelope, within thirty days of its receipt.

The object of the Bureau as defined in the law, is to "collect, compile, and publish such statistics in regard to the wages of labor, and *social condition* of the laboring classes, as may enable the people of the State to judge how far legislation can be invoked to correct existing evils, etc.," and, inasmuch as Building and Loan Associations are incorporated for the purpose of affording an opportunity to the laboring classes "to save, and profitably invest their savings, thus inducing the people to form habits of economy and self-denial, by setting apart, periodically, a portion of their earnings, enabling them to purchase or build their own houses, increasing the number of small real estate owners, and thereby enriching and strengthening the Commonwealth." I deem it expedient for the general information of the people of the State, that the statistical condition of such Associations be published, to show the good that has been done, the number that have been benefited, the wealth that has been accumulated, and the amount of earnings that have been saved, if any, by workingmen, through the influence of such organizations.

Blanks were issued to 996 associations, but owing to pending litigation and legislation on bonus tax, many exhibited a disinclination to furnish the desired information, fearing possibly that it would be used to their prejudice and injury, 208 associations made returns, of which 9 were reported

disbanded, 8 returned from dead letter office, "not found," 1 in hands of receiver, 27 having closed business, and 163 are tabulated in the following tables.

Each association prints and circulates among its members an annual report of its business transactions so that they are in no manner secret or confidential, and the collecting of all these reports and summarizing them in one report would go far to show the public the great good that is being done among wage-workers by and through the influence of building and loan associations, and the disposition that is cultivated among those of moderate means of procuring homes for themselves.

The following is a summary of the 163 associations that have made returns:

Total number of blanks issued,		996
Total number of blanks returned,		163
Capital stock authorized,		$48,314,800 00
Number of shares in default, (not cancelled,)		5,258
Amount due on shares in default,		$94,535 37
Number of stockholders having loans from the associations,		6,800
Receipts for the year 1880—		
Dues,	$1,818,382 64	
Interest,	439,927 26	
Other sources,	1,221,524 14	
Total,		$3,619,355 76
Disbursements for the year 1880—		
Loans,	$1,911,464 92	
Shares withdrawn,	965,018 99	
Rent, salaries, &c.,	372,767 83	
Total,		$3,473,216 01
Assets—		
Loans secured by real estate,	$7,595,380 92	
Other loans,	779,633 60	
Real estate and other securities,	852,462 89	
Cash on hand,	250,583 02	
Total,		$9,195,546 21
Liabilities—		
Amount due stockholders,	$5,200,153 96	
Surplus—net earnings of the associations,	2,266,829 90	
Other liabilities,	145,409 14	
Total,		$8,561,791 40

TABLE 1.—*An exhibit of capital stock authorized, amount paid on each share, &c., of* BUILDING, LOAN, *and* SAVING FUND ASSOCIATIONS *in the State of Pennsylvania, as reported to the Bureau.*

NAME OF ASSOCIATION.	Date of Incorporation.	Capital stock authorized.	Greatest number of shares held by any stockholder.	Amount paid or due on one share to date.	Credited to each share as earnings to date.	Present value of each share.	Number of shares in default, (not canceled.)	Amount due on shares in default.	Number of stockholders having loans from the association.	REMARKS.
Allegheny county.										
Equitable,	. . . . .	. . . . .	20	$13 00	$1 14	$14 14	. . .	. . . .	12	2,500 shares,
Forbes,	September 24, 1877,	. . . .	23	50 70	6 55	57 25	. . .	. . .	40	1,000 shares.
German Sharpsburg,	July 3, 1875,	$150,000	20	65 00	10 00	75 00	2	$32 04	19	
Second Branch O'Hara,	January 5, 1880,	. . .	20	7 80	27	8 07	. . .	. . . . .	7	1,200 shares.
Third Ward,	September, 1880,	100,000	40	5 10	27	5 37	. . . .	. . . . .	3	
Beaver county.										
Beaver Valley,	March 7, 1876,	1,000,000	52	52 25	15 65	67 90	. . . .	. . . . .	. . . .	Four series.
Equitable,	October 11, 1877,	124,800	20	39 00	5 00	44 00	. .	. . . .	53	
Freedom,	November 19, 1877,	. . . . .	40	39 25	8 15	47 40	2	. . . . .	51	1,200 shares.
Berks county.										
Monocacy,	May 24, 1873,	200,000	53	84 00	27 92	111 92	30	549 00	37	
Schuylkill,	June 9, 1873,	1,000,000	75	168 00	93 75	261 75	271	1,888 00	88	
Boyertown,	February, 1873,	. . . . .	10	107 00	39 67	146 67	. . . .	464 33	96	
Hamburg Building and Saving Association,	May 13, 1878,	. . . . .	25	24 00	7 02	31 02	. . . .	24 00	47	930 shares.
Blair county.										
Altoona,	May 8, 1879,	500,000	20	12 00	5 42	17 42				
Franklin,	July 28, 1873,	440,000	. . .	84 00	73 03	157 03	154	. . . .	92	
Homestead,	April 13, 1878,	100,000	20	24 03	6 03	30 03	19	242 74	116	
Logan,	April 4, 1877,	1,000,000	38	36 00	21 06	57 09	17	200 40	164	Three series.
Allegheny, No. 2,	February 16, 1880,	500,000	30	12 00	4 37	16 37	. . . .	. . . . .	38	
Bradford county.										
Towanda,	. . . . .	. . . . .	. . .	96 25	76 62	172 87	. . . .	. . . . .	75	
Bucks county.										
Bristol,	December, 1866,	240,000	33	93 00	34 21	127 21	81	1,000 00	82	Four series.
Cottage,	January, 1871,	160,000	91	108 00	47 00	155 00	25	650 00	63	

Dublin,	April 28, 1873,	$200,000	21	$85 75	$31 43	$117 18	3	$17 25	69	
Bensalem,	February, 1872,		8	108 00	75 17	183 17	2	80 00	10	
Langhorn,	June 2, 1879,	60,000	20	6 00	88	6 88				
Mutual,	April 29, 1873,		17	85 00	30 45	115 45		902 47	47	800 shares.
Milford Square,	May 2, 1873,	80,000	10	85 75	42 16	127 91	23	199 00	64	
Union,	July, 1874,	500,000	34	72 00	27 00	99 00	34	350 00	42	Two series.
Workingman's,	1872,			98 00	53 54	151 54		126 88		
Carbon county.										
Fort Allen,										Ceased operations Nov. 1880, final report Jan., 1881.
Lehighton,				36 00	21 81	57 81				Third annual report.
Mauch Chunk,						162 80				
Centre county.										
Millheim,	December 1, 1874,			60 00	42 94	102 94			103	Six series altogether, one for each year.
Chester county.										
Landenberg,	February 1, 1872,		40	94 00	75 27	169 27			25	2,000 shares. Eight series, one for each year.
Industrial,	November 2, 1871,	500,000	21	108 25	51 84	160 09	42	1,660 69	36	
Perseverance,	August 19, 1872,		10	30 00	4 55	34 55	18	184 00	32	2,500 shares.
Downingtown,	April 30, 1874,		18	72 00	35 73	107 73			12	500 shares.
Berwyn,	November 9, 1877,	1,000,000	25	36 00	8 97	44 97	29	61 20		Two series.
Dauphin county.										
Lykens Saving Fund and Loan Corporation,	April 27, 1874,		10						21	
Highspire,	April 27, 1868,	10,000	33			8 46				
Delaware county.										
Chester and Upland,	October 18, 1873,		40	84 00	28 73	112 73	324	5,711 25	53	2,500 shares. Seven series, one for each year.
Delaware County,	June, 1869,	500,000		108 00	70 43	178 43				Ten series. Eleventh annual report.
Excelsior,	September 4, 1875,	600,000	50	63 00	20 40	83 40		1,148 50	107	
Equal Rights,	August, 1870,	500,000	60	120 00	61 85	181 85			110	
South Chester,	December 4, 1871,	500,000	184	108 00	55 33	163 33	149	1,668 50	40	Four series.
Erie county.										
Workingman's,	July 10, 1876,	1,000,000				60 73				Thirteen series.
Franklin county.										
Citizens',	July 26, 1874,	480,000	30	157 50	53 98	211 48	473		60	Two series.
Huntingdon county.										
Mount Union,	April 11, 1873,	500,000	16	84 25	47 75	132 00			30	
Indiana county.										
Blairsville,	1872,		10	96 00	76 36	172 36			100	
Juniata county.										
Fermanagh,	1879,	300,000	10	12 00	1 34	13 34			9	
Mifflintown and Patterson,	1872,	400,000	10	96 00	62 25	158 25			153	
Pleasant View,	April 2, 1872,			96 25	75 07	171 32	57	28 68	86	

BUILDING, LOAN, AND SAVING FUND ASSOCIATIONS—*Continued.*

NAME OF ASSOCIATION.	Date of Incorporation.	Capital stock authorized.	Greatest No of shares held by any stockh'r.	Amount paid or due on one share to date.	Credited to each share as earnings to date.	Present value of each share.	Number of shares in default, (not canceled.)	Amount due on shares in default.	Number of stockholders having loans from the association.	REMARKS.
Lancaster county.										
Columbia,	April 20, 1868,	.....	35	$95 00	$40 40	$135 40	....	.....	115	Second series.
People's Building Loan and Deposit Company,	June 24, 1875,	$500,000	10	132 00	44 27	176 27	4	$116 71	36	Ten series.
St. Joseph's No. 2,	March 4, 1878,	150,000	15	100 00	47 24	147 24	....	.....	75	
Lehigh county.										
Home,	April 9, 1874,	2,500,000	100	....	....	135 14	....	.....	.....	Sixth annual report.
National,	September 8, 1873,	500,000	190	84 00	60 18	144 18	107	..	301	Three series.
Workingmen's Protective,	April 6, 1874,	.....	230	72 00	12 96	84 96	26	272 10	27	2,500 shares.
Workingman's,	November 18, 1872,	.....	19	98 00	60 18	158 18	72	908 50	65	800 shares.
Luzerne county.										
German,	February, 1877,	500,000	34	36 00	....	....	....	963 98	134	
Empire,	November, 1870,	.....	10	92 00	....	92 00	121	11,132 00	87	1,500 shares.
Laurel Run,	April 3, 1871,	.....	10	..	....	36 84	....	1,708 88	35	2,500 shares.
Nanticoke,	April 8, 1876,	500,000	5	49 00	24 21	73 21	....	..	10	
West Hazleton,	February 12, 1872,	500,000	90	84 00	17 85	101 85	...	2,336 00	40	
Lycoming county.										
German,	April 25, 1867,	500,000	17	111 00	89 83	200 83	....	261 67	59	Thirty-six series.
Monroe county.										
Stroudsburg,	November, 1873,	500,000	15	84 00	65 12	149 12	....	.....	....	Three series.
Montgomery county.										
First National Saving Fund and Loan Association,	April, 1874,	200,000	35	72 00	25 99	97 99	....	.....	68	
Gulf Saving Fund and Loan Association,	May 28, 1872,	300,000	10	93 00	44 05	137 05	1	24 80	12	Three series.
Huntingdon Valley,	1874,	250,000	30	57 50	21 74	79 24	....	....	51	Nine series.
Harmony,	April 11, 1876,	200,000	25	60 00	15 64	75 64	20	425 17	247	
Rising Sun,	September 17, 1878,	500,000	34	24 00	1 63	25 63	63	266 11	17	Two series.
Spring Mill,	August 18, 1873,	500,000	30	84 00	35 25	119 25	38	226 67	39	

Union Saving Fund and Loan Association,	August 21, 1871,	500,000	100	108 00	54 40	162 40	97	4,062 62	68	
Weldon Saving Loan and Building Association,	March 1, 1870,	500,000	20	120 00	67 20	187 20		700 00		Two series.
William B. Rambo,	March 21, 1878,	500,000	35	24 00	1 66	25 66	17	23 86	21	Two series.
Northampton County.										
Glendon,	April 25, 1871,	500,000	10	108 00	72 53	180 53	55		61	Ninth annual report. Two series.
Lehigh,	January 17, 1871,	500,000	10	114 00	85 62	199 62				Four series.
West Ward,				84 00	46 95	130 95				Seven series.
Northumberland County.										
West Ward,	December, 1873,		13	84 00						2,500 shares.
Perry County.										
Liverpool Saving Fund and Loan Association,	May, 1872,		23	100 00	70 00	170 00	40		40	
Philadelphia County.										
Anthracite,										Thirteenth annual report. Nine series.
Ark,	Febrnary 25, 1876,	1,000,000	171	48 00	10 85	58 85				Fourth series.
Bellevue,	July 2, 1873,	500,000	36	84 00	59 35	143 35		491 65	25	Six series.
Bridesburg,	October, 1868,	500,000	59	120 00	79 11	199 11				Two series.
Bustleton,	June, 1868,	500,000	12	132 00	46 96	178 96	9	360 61	14	Eighteen series.
Chelten Hill Mutual Imp. Association,	June 1, 1868,	250,000	85	59 50	28 58	88 08	255	1,557 26	55	Four series.
Anchor,	March 2, 1874,	500,000	50					32 00		Six series.
Carroll, No. 4,				109 00	53 21	162 21				
Concordia, No. 3,	November, 1874,	500,000	20	72 25	17 49	89 74			27	
Commodore Barry,	July 25, 1874,		30	72 00	32 40	104 40		645 73	29	Six series.
Coral,	October, 1875,			24 00	2 92	26 92				Four series. 5,000 shares.
Central Philadelphia,	May, 1869,		25						35	Eight series.
David Smyth,	October 19, 1877,	500,000	25	36 00	10 57	46 57	42	455 10	14	Four series.
Equity,	1869,		42	120 00	76 06	196 06	101	490 45	27	Ten series. 2,000 shares.
Exchange,				36 00	9 18	45 18				Three series.
Enterprise Saving Fund and Loan Association,		500,000	60	120 00	64 14	184 14	162	2,028 79	168	
Fritz Reuter,	November 8, 1878,	1,000,000	25	25 00	6 17	31 17			33	
Fifteenth Ward, No. 2,	June 6, 1870,	500,000	40	120 00	69 48	189 48	150	3,090 64	38	
Fifteenth Ward,	December 2, 1867,	500,000	20	120 00	53 58	173 58	26	382 75	11	
Falls of Schuylkill,	January, 1867,		36						54	Fourteen series.
George W. Hyde, Saving Fund and Building Association,	June 2, 1873,	500,000	25	84 00	39 27	123 27	139	1,678 69	39	
George W. Hyde, Saving Fund and Building Association, No. 2,	August 25, 1874,	500,000	35	72 00	28 33	100 33	84	1,367 00	30	
German Fair Hill,	September 16, 1872,		37	96 00	77 52	173 52		104 87	42	Five series. 2,500 shares.
Good Will,	October 18, 1877,		50	36 00	7 47	43 47			24	Three series. 2,500 shares.
Germania Building and Saving Fund Association, No. 2,	June 19, 1872,		45	47 50	25 93	73 43			63	Two series. 2,000 shares.
House Owners,	May 14, 1875,		20	60 00	28 28	88 28				Five series. 5,000 shares.
Hand-in-Hand,	February, 1872,	820,000	50	99 25	55 75	155 00			105	
Hazel,	December 2, 1872,		20	96 00	67 11	163 11			28	Eight series. 2,500 shares.
Homestead,	March, 1870,		96	120 00	65 76	185 76	90	4,100 00	49	2,500 shares.

BUILDING, LOAN, AND SAVING FUND ASSOCIATIONS—*Continued.*

NAME OF ASSOCIATION.	Date of Incorporation.	Capital stock authorized.	Greatest number of shares held by any stockholder.	Amount paid or due on one share to date.	Credited to each share as earnings to date.	Present value of each share.	Number of shares in default, (not cancelled.)	Amount due on shares in default.	Number of stockholders having loans from the association.	REMARKS.
Philadelphia county.										
Hearth and Home,				$36 00	$4 30	$40 30				Three series.
Hanover,	September 15, 1873,	$500,000	35	84 00	27 55	111 55	16	$385 54	15	Six series.
Homestead,	May 22, 1879,		100	6 00	87	6 87				10,000 shares.
Insurance,	August, 1876,	400,000	25	48 00		44 16		93 00	6	
Independent,				113 00	87 00	200 00				Eight series. Eleventh annual report.
Laurel Hill,	March, 1869,		50	108 00	64 20	172 20				Ten series. Eleventh annual report. 2,500 shares.
Mutual Benefit,	October, 1877,		25	36 00	8 14	44 14				Six series. 5,000 shares. Sixth semi-annual report.
Mount Vernon,										Eight series.
Miller,	November 22, 1877,	1,000,000	20	36 00	7 66	43 66			12	Three series.
Milestown, No. 5,	March, 1866,	250,000	20	52 00	17 31	69 31	89	1,284 02	17	Six series.
New Market,	June 15, 1872,		30	96 00	53 80	149 80			36	2,500 shares.
North America, No. 4,	June 1, 1868,	500,000	213	120 00	26 42	146 42			60	Second series.
Northern Liberties,	February, 1873,		37	84 00	44 12	128 12	180	1,540 56	50	Seven series. 2,500 shares.
Philadelphia and Reading,	October 10, 1879,	1,000,000	25	12 00	22	12 22		214 00	7	Two series.
Pacific,	May, 1876,		60	48 00	11 94	59 94			21	Five series. 5,000 shares.
Provident,	December, 1867,		96	108 00	73 38	181 38	250	3,210 64	48	Eight series. 2,500 shares.
Pittville,	September 18, 1871,	250,000	50	54 00	27 39	81 39	55	633 12	31	
Ritchie,	February, 1872,		36	96 00	49 05	145 05	13	473 39	52	Nine series. 2,500 shares.
Richmond,						2 9 16				Nine series.
Radiant Star,	July 20, 1868,		50	133 00	66 26	199 26				Two series. 2,500 shares.
Rhein,	December 31, 1875,	1,000,000		49 00	17 83	66 83			58	
Robert Blum,	June 6, 1870,	500,000	40							Thirty-five series.
Reliance,	June 9, 1879,	1,000,000	60	6 00	93	6 93	72	295 63	120	
Seventh,	November 25, 1876,		35	83 00		83 00	98	1,795 27	25	5,000 shares.
Schuylkill,	September 13, 1868,		50	108 00	67 88	175 88	226	844 66	84	Nine series. 2,500 shares.
Stephen Girard Saving, Loan and Building Association,	June 13, 1876,		20							Five series. 2,500 shares.
Security,	March 25, 1875,		40	36 00	13 23	49 23	5	87 30	62	2,500 shares.
Standard,	September 17, 1877,		50	42 00	18 29	60 29	115	2,479 82	62	Five series.
Workingmen's Club,	July 31, 1876,		50						11	5,000 shares.
Wissahickon,	September, 1873,		35	84 00	59 62	143 62				Fourteen series. 2,500 shares.
Franklin,	March 3, 1875,	1,000,000	35	72 00	64 61	136 61		83 11	37	Six series.

Southwark,	February 29, 1876,	1,000,000	35	60 00	19 43	79 43	1,073 86	30	Five series.
Philadelphia,	December 17, 1869,	200,000				205 50	602 00	9	Seven series.
Safe Deposit,	December 5, 1870,	500,000	35	123 00	71 35	194 35	1,600 00	48	
Home,	1877,		75	42 00	21 53	63 53		71	Six series.
League Island,	February 6, 1872,	500,000	11					164	
Powelton,	June 19, 1871,			102 00	69 60	171 60	1,116 48	54	Thirty-two series.
Morton,	May 24, 1869,		30	120 00	80 00	200 00	932 99	36	Fifteen series.
Pike county.									
Matamoras,	February, 1874,	600,000	10	103 00	28 00	131 00		59	Fourteen series.
Schuylkill county.									
Ashland Saving Fund and Loan Association,	September 8, 1873,		62	84 00	49 72	133 72	2,449 36	97	Two series.
Citizens' Saving Fund and Loan Association,	1876,	1,000,000	192	60 00	29 20	89 20	226 95	60	Two series.
Donaldson Saving Fund & Building Association,	October 14, 1872,		25	96 00	68 70	164 70		75	2,000 shares.
Equitable Saving Fund & Building Association,	December 2, 1872,	500,000	75	96 00		154 37	5,909 18	74	
Farmers',						134 93			
Frackville Building and Saving Association,	April, 1869,		10						1,000 shares.
Pine Grove Building and Saving Association,	January 24, 1880,		10	12 00	53	12 53		14	550 shares.
Shenandoah Saving Fund,	1865,		16	108 00	64 71	172 71		57	
Tremont Saving Fund Ass.,	June 11, 1887,	400,000	165	84 00	44 82	128 82	118 00	66	Two series. 2,500 shares.
Susquehanna county.									
Mutual Building, Loan and Saving Association,	January, 1874,	500,000	20	72 25	56 36	128 61	731 75		
Venango county.									
Workingmen's,	April 22, 1872,	500,000	27	96 00	97 47	193 47	6,385 25	77	
Washington county.									
Washington,	June 10, 1874,	1,000,000	13	72 00	45 98	117 98	207 86	31	
Mechanics',	July 7, 1875,	1,000,000	25	60 00	36 00	96 00		25	
Westmoreland county.									
Greensburg,	August 25, 1873,	500,000	15	84 00	79 94	163 94	1,329 65	90	Six series.
West Newton,	September 15, 1873,	500,000				157 99		76	Seven series.
Scottdale,	April 3, 1876,	500,000	12	48 00	32 46	80 46	1,077 44	22	Four series.
York county.									
Goldsboro',			20	52 00	9 00	61 00		11	

TABLE 2.—*An exhibit of receipts and disbursements for the year 1880; the State of Pennsylvania,*

NAME OF ASSOCIATION.	RECEIPTS FOR THE YEAR 1880.				DISBURSEMENTS FOR THE YEAR 1880.		
	Dues.	Interest.	All other sources.	Total.	Loans.	Shares withdrawn.	Rent, salaries, and other expenses.
Allegheny county.							
Equitable,	$14,519 65	$337 14	$1,232 38	$16,089 17	$13,871 00	$1,195 00	$475 84
Forbes,	5,130 33	1,262 55	. . . .	6,392 88	. . .	. . .	39 50
German, Sharpsburg,	522 00	154 38	3 70	680 08	800 00	78 00	26 50
Second Branch O'Hara,	5,490 60	95 85	228 40	5,814 85	4,700 00	202 50	140 44
Third Ward,	4,942 90	57 46	333 45	5,333 81	4,000 00	217 65	134 50
Beaver county.							
Beaver Valley,	24,731 16	3,540 85	33,143 45	61,415 46	53,400 00	7,733 39	282 16
Equitable,	15,690 13	2,205 41	3,010 52	20,906 06	22,486 00	. . . .	224 00
Freedom,	5,200 00	917 28	1,411 38	7,528 66	6,720 00	693 35	104 00
Berks county.							
Monocacy,	4,875 00	1,781 00	3,819 97	10,475 97	6,192 25	1,834 01	194 81
Schuylkill,	17,839 93	7,153 33	13,257 30	38,241 59	13,049 00	10,101 67	6,575 50
Boyertown,	2,569 50	1,361 30	7,960 98	11,891 78	5,620 00	5,865 10	2,476 13
Hamburg B. and S. Association,	7,121 00	1,068 00	7,168 61	15,357 61	14,736 00	64 08	65 52
Blair county.							
Altoona,	27,142 00	1,096 00	265 61	28,503 61	28,086 00	. . . . .	505 52
Franklin,	9,667 00	6,582 00	3,611 63	19,230 63	18,848 50	. . . .	533 58
Homestead,	5,098 25	290 50	61 20	5,449 95	4,916 00	193 00	340 95
Logan,	35,321 40	6,355 21	16,259 38	57,935 99	42,409 10	938 96	459 39
Allegheny, No. 2,	22,535 52	790 00	418 47	23,713 99	23,151 00	70 62	492 37
Bradford county.							
Towanda,	7,520 90	6,994 00	2,856 99	17,371 89	14,087 95	1,493 27	412 00
Bucks county.							
Bristol,	16,825 00	. . . . .	7,301 00	. . . .	18,000 00	. . . . .	240 00
Cottage,	15,635 00	. . .	1,812 00	. . . .	17,284 00		183 00
Dublin,	4,370 40	1,977 08	1,717 52	8,065 00	5,600 00	2,350 00	115 00
Bensalem,	462 00	3 9 00	27 87	798 87	200 00	419 00	165 00
Langhorn,	3,600 00	175 00	966 02	4,741 02	5,050 00	. .	62 74
Mutual,	5,095 00	2,734 67	4,263 70	12,093 37	8,400 00	2,247 44	120 50
Milford Square,	2,896 75	1,503 40	4,123 75	8,523 90	8,100 00	557 75	412 19
Union,	7,858 00	. . .	338 00	. . .	4,800 00	2,869 00	183 00
Workingman's,	44,325 75	12,910 26	23,605 82	80,841 83	66,700 00	7,047 85	6,491 00
Carbon county.							
Fort Allen,	18,821 40	1,948 00	980 00	21,749 40	. . . . .	. . . . .	. . . . .
Lehighton,	7,287 05	1,364 00	2,399 50	11,050 55	. . . . .	. . . .	. . . . .
Mauch Chunk,	. . . .	. . . . .	. . . . .	110,008 15	. . . . .	. . . . .	. . . . .
Centre county.							
Millheim,	4,341 00	1,301 53	1,607 03	7,249 56	5,800 00	767 39	238 19
Chester county.							
Landenberg,	1,991 29	937 96	1,121 95	4,051 20	360 00	3,513 13	128 32
Industrial,	6,052 00	2,010 00	7,106 00	15,168 00	3,050 00	2,881 60	740 35
Perseverance,	6,115 50	715 99	324 50	7,155 99	6,105 50	993 08	162 92
Downingtown,	1,882 07	630 10	437 06	2,949 23	1,000 00	1,454 50	241 24
Berwyn,	4,505 41	719 32	963 57	6,188 30	5,164 71	1,401 33	122 21
Dauphin county.							
Lykens Saving Fund and Loan Corporation,	442 00	3 80	1,721 78	2,167 58	140 00	1,635 00	389 43
Highspire,	. . . . .	. . . . .	300 25	300 25	. . . .	70 00	176 41
Delaware county.							
Chester and Upland,	11,033 80	2,702 34	10,046 51	23,782 65	12,625 00	1,288 00	1,252 21
Delaware County,	106,873 25	34,700 50	108,914 46	26,488 21	166,070 85	58,595 75	35,821 61
Excelsior,	85,893 59	14,343 95	15,970 43	116,154 97	84,250 00	16,030 83	15,874 14
Equal Rights,	11,328 66		370 40	11,699 06	10,655 47		530 39
South Chester,	8,339 14	5,373 48	11,087 19	24,799 81	11,930 00	6,091 00	1,078 36
Erie county.							
Workingman's,	2,394 43	269 27	1,237 31	3,901 01	245 00	2,952 97	703 04

assets and liabilities of BUILDING, LOAN AND SAVING FUND ASSOCIATIONS *in as reported to the Bureau.*

ASSETS.						LIABILITIES.			
Total.	Loans secured by real estate.	Other loans.	Real estate and other securities.	Cash on hand.	Total.	Amount due stockholders, being the amount paid by them as stock.	Surplus, being the net earnings of the association.	All other liabilities.	Total.
$15,541 84	$13,871 00	. . . . .	$776 00	$663 43	$15,310 43	$13,324 65	$1,985 78	. . . . .	$15,310 43
	20,100 00				20,100 00		2,290 50		
904 50	8,200 00	$2,000 00	5,030 00	215 15	15 145 15	1,400 00	1,660 00	$1,000 00	4,060 00
5,042 94	4,700 00	. . .		771 91	5,471 91	5,288 10	183 81	. . . . .	5,471 91
4,352 15	4,000 00	. . . . .	5 05	981 66	4,986 71	4,966 05	20 66	. . . . .	4,986 71
61,415 46	78,900 00	. .	805 00	749 12	80,454 12	64,513 37	15,940 75	. .	80,454 12
22,310 00	39,130 00	3,042 00	2,349 74	242 64	44,764 38	37,531 00	4,800 38	2,433 00	44,764 38
7,517 35	15,496 00	3,432 00	. .	70 55	18,998 55	7,502 00	1,776 70	. . . . .	9,278 70
8,221 07	14,800 00	17,200 00	9,903 24	2,254 90	44,158 14	33,255 00	10,903 14	. . . . .	44,158 14
29,726 17	130,060 00	14,493 02	25,242 50	8,515 42	178,250 94	112,520 00	65,730 94	. . . . .	178,250 94
13,961 23	19,200 00	8,700 00	1,404 33	495 84	29,800 17	21,400 00	8,400 17	. . . . .	29,800 17
14,865 60	32,400 00	. . . . .	24 00	3 52	32,427 52				
28,591 52	39,000 00	. . . . .	153 00	. . . .	. . . .	27,142 00	11,711 69		
19,492 68	105,100 00	. . . . .	3,729 66	160 34	108,990 00	57,120 00	47,454 00	2,208 00	106,782 00
5,449 95	11,600 00	. . . . .	242 74	226 23	12,068 97	10,354 36	1,330 35	381 26	12,063 97
43,807 45	134,900 00	. . . . .	907 40	1,100 78	136,908 18	88,356 00	42,253 48	. . . . .	130,609 48
23,713 99	30,500 00	. . . . .	. . . . .	. . . .	30,500 00	22,505 52	7,836 67	157 81	30,500 00
15,993 22	120,400 00	3,000 00	5,974 39	453 72	129,828 11	72,283 75	56,305 88	1,238 48	129,828 11
. . . . .	79,600 00	. . . .	. . . .	1,561 00	. . . .	61,964 00	81,161 00		
. . . . .	119,675 00	. .	. .	42 00	. . . .	84,240 00	35,477 00		
8,065 00	6,492 60	32,071 54	2,620 16	188 91	41,373 21	39,051 80	2,321 41	. . .	41,373 21
784 00	6,400 00	. . . . .	1,148 40	145 01	7,693 41	4,536 00	3,157 41	. . .	7,693 41
5,112 74	5,050 00	. . . . .	. . .	. .	5,050 00	3,600 00	529 62	920 38	5 050 00
10,767 94	44,400 00	. .	902 47	1,785 34	47,087 81	35,190 00	10,945 00	. . . . .	46,135 00
9,069 94	9,500 00	20,750 00	483 91	63 12	30,797 03	20,580 00	10,119 03	98 00	30,797 03
. . . .	39,896 00	. . . . .	. .	166 00		30,168 00	9,874 00		
80,238 86	54,800 00	. . . . .	5,015 55	602 34	60,417 89				
21,749 40	3,049 98	35,200 00	3,248 65	703 56	42,202 19	21,672 00	20,168 39	361 80	42,202 19
11,050 55	476 40	27,200 00	436 90	654 75	28,768 05	17,952 00	10,816 05	. . . . .	28,768 05
94,572 96	. . . . .	. . . . .	. . . . .	. . . . .	225,512 76	. . .	. . . . .	. . . . .	225,512 76
6,805 58	27,000 00	. . . . .	202 53	9 70	27,212 23	16,344 00	10,932 44	. . . . .	27,276 44
4,601 45	10,998 01	2,400 00	1,419 25	51 49	14,868 75	8,052 00	6,816 75	. . . . .	14,868 75
6,671 95	28,522 16	6,250 00	21,656 63	11,930 21	68,359 00	46,116 00	22,243 00	. . . . .	68,359 00
7,271 50	14,475 00	. . .	205 39	1,316 59	15,996 98	13 890 00	2,106 98	. . . . .	15,996 98
2,695 74	12,100 00	500 00	4,724 09	1,128 30	18,452 39	11,661 00	6,788 39	. . . .	18,452 39
6,688 25	11,250 00	2,350 00	180 85	373 52	14,154 37	11,532 00	2,441 52	180 85	14,154 37
2,164 43	. . . .	4,105 63	. .	21 96	4,127 59	3,076 81	111 44	37 14	3,225 39
246 41	. . . . .	. . . .	2,400 00	53 84	2,453 84	1,200 00	441 84	812 00	2,453 84
15,165 21	52,600 00	2,950 00	27,527 22	1,697 04	84,774 26	66,441 00	18,333 26	. . . . .	84,774 26
260,488 21	86,970 85	. . . .	11,916 71	. . . . .	98,887 56	63,657 00	34,960 07	. . . . .	98,617 07
116,154 97	84,250 00	. . . . .	1,614 61	9,930 85	95,795 46				
11,185 86	168,300 00		7,782 91	513 20	176,596 11	110,760 00	57,087 43	8,748 68	176,596 11
19,099 36	42,450 00	45,230 00	8,747 51	1,229 66	97,657 17	64,260 00	33,227 67	. . . . .	97,487 67
3,901 01	6,400 00	. . . . .	4,879 00	124 02	11,403 02				

BUILDING, LOAN, AND SAVING

NAME OF ASSOCIATION.	RECEIPTS FOR THE YEAR 1880.				DISBURSEMENTS FOR THE YEAR 1880.		
	Dues.	Interest.	All other sources.	Total.	Loans.	Shares withdrawn.	Rent, salaries, and other expenses.
Franklin county.							
Citizens',	$12,449 95	$4,463 00	$8,032 14	$24,945 09	$9,950 73	$11,482 71	$2,661 93
Huntingdon county.							
Mount Union,	2,620 00	1,460 00	446 37	4,526 37	. . . . .	4,829 07	383 46
Indiana county.							
Blairsville,	7,532 87	5,312 62	10,625 08	. . .	20,900 00	6,095 91	1,666 12
Juniata county.							
Fermanagh,	3,270 50	45 00	. . . .	3,315 50	2,138 00	22 00	205 40
Mifflintown and Patterson,	7,075 00	4,758 00	6,499 99	18,332 99	11,183 40	523 34	668 50
Pleasant View,	2,431 26	1,484 16	1,320 33	5,235 75	4,200 00	. . . . .	1,035 75
Lancaster county.							
Columbia,	16,673 00	7,615 00	10,803 58	35,091 58	10,950 00	20,913 25	560 19
People's Building, Loan, and Deposit Company,	4,107 00	336 60	556 13	4,999 73	2,345 00	722 81	2,166 85
St. Joseph's,	66,694 00	23,292 75	20,977 18	110,963 93	81,075 00	27,447 13	1,368 28
Lehigh county.							
Home,	. . . . .	. . . .	.	45,958 57	. . . .	. . . . .	. . . .
National,	6,983 71	3,906 02	9,492 85	20,382 58	18,400 00	1,326 94	644 89
Workingmen's Protective,	22,310 60	. .	9,136 64	31,447 24	28,000 00	375 70	2,720 07
Workingman's,	4,655 38	3,031 17	2,844 09	10,530 64	9,800 00	531 74	214 31
Luzerne county.							
German,	23,514 89	. .	4,852 00	. .	22,798 42	99 56	269 74
Empire,	17,625 83	28,00	1,744 91	19,398 79	865 00	14,232 61	1,509 87
Laurel Run,	202 61	. . .	1,157 75	1,360 36	275 60	. . . . .	673 16
Nanticoke,	894 77	237 97	739 71	1,872 45	.	1,742 48	129 97
West Hazleton,	5,580 00	2,472 00	2,255 25	10,307 25	2,544 00	4,614 69	456 20
Lycoming county.							
German,	1,839 00	1,864 86	6,259 46	9,963 32	4,445 40	5,263 89	890 12
Monroe county.							
Stroudsburg,	2,287 00	1,280 97	10,553 98	14,121 95	5,070 90	8,070 99	354 60
Montgomery county.							
First National Saving Fund and Loan Association,	11,280 66	. . . . .	4,246 10	15,526 76	7,800 00	4,906 06	2,320 70
Gulf Saving Fund and Loan Association,	5,259 17		3,600 00	8,859 17	3,999 80	2,814 04	628 08
Huntingdon Valley,	5,478 50	1,875 32	9,460 43	.	6,350 00	6,834 78	117 00
Harmony,	3,448 72	. . . .	56 75	3,505 47	3,025 00	962 57	66 50
Rising Sun,			. . .	6,731 65	5,700 00	392 54	422 21
Spring Mill,	6,362 68	3,175 00	1,497 21	11,034 89	5,750 00	2,345 72	1,816 96
Union Saving Fund and Loan Association,	7,272 00	4,788 00	4,787 15	16,847 15	6,200 00	2,139 80	360 15
Weldon Saving, Loan, and Building Association,	7,226 07	. . . .	7,251 58	14,477 65	10,610 00	2,150 00	210 78
William B. Rambo,	18,344 00	1,001 50	834 25	20,179 75	16,300 00	2,581 05	1,298 70
Northampton county.							
Glendon,	8,401 00	4,785 93	6,998 18	20,185 11	11,180 68	6,203 38	520 06
Lehigh,	2,760 00	2,037 00	16,681 89	21,478 89	7,400 00	9,813 93	4,264 96
West Ward,	8,248 50	1,997 50	11,628 29	21,874 29	4,474 41	12,253 50	1,737 38
Northumberland county.							
West Ward,	1,764 00	108 00	1,447 00	3,319 00	1,800 00	960 77	558 23
Perry county.							
Liverpool Saving Fund and Loan Association,	2,548 74	. . . . .	. . . . .	2,548 74	2,400 70	. . . . .	. . . . .
Philadelphia county.							
Anthracite,	8,349 00	3,287 75	2,014 29	13,651 04	1,550 00	2,122 00	9,979 04
Ark,	46,811 63	. . .	11,336 11	58,147 74	49,700 00	12,823 93	1,914 65
Bellevue,	7,132 00	1,152 23	2,713 72	10,997 95	4,600 00	3,022 25	3,375 70

FUND ASSOCIATIONS—*Continued.*

ASSETS.						LIABILITIES.			
Total.	Loans secured by real estate.	Other loans.	Real estate and other securities.	Cash on hand.	Total.	Amount due stockholders, being the amount paid by them as stock.	Surplus, being the net earnings of the association.	All other liabilities.	Total.
$24,095 37	$77,100 00	$8,864 48	$2,959 00	$849 72	$89,773 20	$67,462 50	$22,310 70	. . . . .	$89,773 20
. . . . .	20,000 00	696 80	4,150 00	255 37	. . . . .	4,620 00			
28,661 03	24,800 00	. . . . .	1,000 00	943 00					
2,365 40	2,600 00	. . . . .	. .	950 10	3,550 10	3,192 00	358 10	. . .	3,550 10
12,375 24	90,400 00	. . . .	5,957 75	4,618 21	100,975 96	59,328 00	38,470 68	$4,177 28	101,975 96
5,235 75	40,400 00	. . . . .	2,786 00	974 85	44,160 85	24,928 75	19,232 10	. . . . .	44,160 85
32,423 44	103,500 00	. . . . .	3,283 80	2,668 14	109,451 94	83,245 00	26,206 94	. . . . .	109,451 94
5,234 66	5,900 00	7,067 70	2,636 70	3,437 24	19,041 64	14,862 00	2,083 25	2,096 39	19,041 64
109,890 41	58,200 00	3,750 00	. .	1,073 52	63,023 52	42,800 00	20,223 52	. . . . .	63,023 52
12,240 05	. . . .	.			98,381 60	.	.	. . . .	98,381 60
20,371 83	60,200 00	3,278 79	3,165 95	10 75	66,655 49	39,828 00	26,568 10	259 39	66 655 49
31,095 77	106,400 00		4,401 92	422 00	111,223 92	65,516 90	45,707 02	. .	111,223 92
10,546 05	18,650 00	48,625 00	2,328 02	95 61	69,698 63	43,120 00	26,479 20	103 82	69,703 02
	81,800 00	. . . . .	.	38 56					
16,607 48	123,600 00	. . . . .	13,395 43	177 88		10,648 00		756 24	
948 76		. . . . .	4,007 63	413 45	4,421 08	2,216 58	2,112 57	91 93	4,421 08
1,872 45	3,600 00	. . . .		88 67	3,888 67	2,688 00	1,200 67	. . . .	3,888 67
. . . . .	61,000 00	. . . .	1,500 00	13 29					
10,599 41	10,025 67	16,949 78	15,553 67	936 22	43,465 34	27,114 00	13,474 26	3,379 67	43,967 93
13,496 49	20,400 00	1,251 21	450 00	607 42	22,708 63	13,368 00	9,547 63	. . . .	22,915 63
15,526 76	56,200 00	. . . . .	10,928 15	2,345 26	69,473 41				
7,441 92	20,350 00	1,400 00	7,311 34	2,209 92	31,271 26	21,881 00	10,125 53	. . .	32,006 53
. .	30,100 00	. .	. . .	3,411 49					
4,654 07	10,875 11	3,230 00	. . .	733 32	14,838 43	11,592 00	4,822 00	. . . . .	16,414 00
6,514 75	9,100 00	73 00	206 11	352 36	9,731 47	9,168 00	563 47	. . .	9,731 47
9,912 68	53,726 50	4,850 00	1,524 00	2,019 42	62,119 92	44,016 00	18,476 22	. . .	62,492 22
8,699 95	65,600 00	11,800 00	6,462 62	14,556 41	98,419 03	60,648 00	37,125 78	645 25	98,419 03
12,970 78	61,810 00	555 31	2,275 80	2,316 51	66,957 62	47,000 00	19,957 62	. . . .	66,957 62
20,179 75	16,100 00	. .	65 66	662 77	16,828 43	15,804 00	1,024 43	. . . .	16,828 43
17,904 12	78,400 00	17,970 68	14,690 83	1,733 54	112,800 05	66,366 00	43,790 28	. . . . .	110,156 28
21,478 89	. . . . .	. . . .	70,351 10	3,083 97	73,435 07	. . . . .	. . .	. . . . .	73,435 07
18,465 29	. . . . .	. . . . .	56,093 47	3,409 00	59,502 47				
3,319 00	. . . . .	. . . . .	8,000 00	921 00	8,921 00				
2,400 70	20,000 00	. . . .	350 00	148 04	20,498 04	12,500 00	7,164 00	1,200 00	20,864 00
13,651 04	58,050 00	2,130 70			60,180 70	.	. . .	.	60,180 70
64,438 63	110,000 00	3,900 0	5,043 23	1,400 58	120,343 81	94,380 00	18,184 14	7,779 67	120,343 81
10,997 95	31,400 00	5,800 00	4,216 65	192 95	41,609 60	27,504 00	14,073 44	32 16	41,609 60

BUILDING, LOAN AND SAVING

NAME OF ASSOCIATION.	RECEIPTS FOR THE YEAR 1880.				DISBURSEMENTS FOR THE YEAR 1880.		
	Dues.	Interest.	All other sources.	Total.	Loans.	Shares withdrawn.	Rent, salaries, and other expenses.
Philadelphia county.							
Bridesburg,	$24,270 15	$8,007 00	$16,448 86	$48,726 01	$30,550 36	12,869 57	$4,347 88
Bustleton,	2,164 00	529 00	2,543 44	5,236 44	500 00	2,785 33	1,527 25
Chelton Hills, M. I. A.,	12,937 38	2,338 25	935 86	16,261 49	9,890 87	4,188 63	1,460 38
Anchor,	17,743 00	4,867 40	18,2 6 92	40,817 32	4,800 00	25,510 58	10,506 74
Carroll, No. 4,	14 885 00	7,203 80	24,113 77	46,202 57	41,451 66	21,176 90	6,084 39
Concordia, No. 3,	8,788 00	4,374 30	38,003 03	51,165 38	9,400 00	38,300 60	2,377 38
Commodore Barry,	11,156 30	.	1,201 55	12,357 85	8,675 00	7,207 28	504 21
Coral,	4,749 82	177 76	213 75	5,132 33	2,517 00	1,742 85	872 48
Central Philadelphia,	8,515 00	3,405 43	1,126 83	13,047 26	. . . . .	11,588 44	783 06
David Smyth,	11,996 00	1,429 01	3,175 02	16,600 03	6,839 00	9,586 70	274 30
Equity,	7,006 87	2,294 58	3,399 20	12,700 65	7,116 20	6,095 65	734 85
Exchange,	. . .	. . . . .	. . . .	6,386 21	1,900 00	4,307 16	179 05
Enterprise Saving Fund and and Loan Association,	21,148 00	5,523 83	4,390 00	31,061 83	28,000 00	2,316 00	313 22
Fritz Reuter,	24,474 00	2,994 63	1,8 7 83	29,286 49	12,600 00	4,404 97	12 227 82
Fifteenth Ward, No. 2,	8,896 00	4,419 35	474 06	13,789 41	675 50	5,754 89	1,449 25
Fifteenth Ward,	1,678 00	876 09	293 50	2,847 59	2,590 48	.	399 86
Falls of Schuylkill,	20,227 78	5,676 56	3,643 56	29,547 90	5,000 00	14,026 77	9,453 46
George W. Hyde, Saving Fund and Building Association,	11,782 00	3,855 53	6,202 50	21,840 03	3,425 00	11,075 76	344 92
Geo. W. Hyde, S. F. and B. A., No. 2,	12,813 00	3,037 74	2,049 60	17,900 34	2,603 00	12,898 49	917 02
German Fair Hill,	9,156 00	3,380 85	3,399 96	15,936 81	3,960 50	10,954 07	1,021 24
Good Will,	13,028 00	968 50	2,745 52	16,743 02	8,600 00	5,312 03	461 90
Germania B. and S. F. A., No. 2,	4,504 46	2,8 9 35	932 90	8,296 71	7,836 75	221 62	238 34
House Owners',	7 462 00	1.344 02	2,912 42	11,718 44	900 00	8,600 76	2,217 68
Hand-in-Hand,	16,486 00	10,092 00	106 938 71	133,5 6 71	29,600 00	113,425 57	3,721 78
Hazel,	7,761 09	.	2,544 76	10,305 85	8,553 92	. . .	1,751 93
Homestead,	13,543 02	3,125 95	15,228 30	31,897 27	10,891 50	20,141 54	2 207 27
Hearth and Home,	9,493 15	. .	1,846 39	11,339 50	4,932 00	4,946 02	1,461 52
Hanover,	4,184 00	848 54	2,770 78	7,803 32	4,000 00	2,004 82	1,798 50
Homestead,	16,858 17	. . .	1,484 50	18,342 67	15,500 00	70 00	2,772 67
Insurance,	2.551 00	326 67	3,968 80	6,845 87	1,100 00	4,349 44	1,396 43
Independent,	20,503 52	. . . . .	7,982 29	28,485 81	23,182 31	. . . .	5,303 50
Laurel Hill,	. . .	. . . .	. .	37,745 02	.	. .	. . . . .
Mutual Benefit,	5,607 00	346 26	3,882 63	9 835 89	7,028 50	1,982 77	844 62
Mount Vernon,	10,128 21	2,473 07	10,495 34	23,096 62	.	4,053 79	19,042 83
Miller,	4,608 13	635 14	681 32	5,924 59	2,822 00	1,373 30	179 03
Milestown, No. 5,	1,516 00	909 25	2 962 04	5,387 29	2,600 00	2,293 48	480 90
New Market,	8,799 84		1,739 53	10.539 37	306 00	7,314 48	1,485 93
North America, No. 4,	62,304 00	19,048 00	110.052 51	191,404 51	189,553 20	.	1,778 41
Northern Liberties,	19,557 59	4,194 70	12,673 82	38,426 11	15,200 00	11,330 42	9,895 69
Philadelphia and Reading,	14.2 8 50	334 28	626 11	15.228 89	8,300 00	1,069 50	420 81
Pacific,	8,293 00	5,956 90	888 49	15.136 39	12,600 00	1.882 04	654 25
Provident,	14,586 75	2.760 16	6,763 50	24,110 41	5,779 00	10.765 82	3.534 84
Pittville,	3,599 50	2,107 83	10,348 78	16,056 11	2,700 00	1,672 44	6.219 55
Ritchie,	15,978 40	2,917 20	3,622 80	22,518 40	12,370 00	3,069 73	2 334 07
Richmond,	18,889 50	8,520 60	11,920 03	39,330 13	14,210 00	4,411 0	20,7 9 13
Radiant Star,	3,001 54	2,362 61	27,576 92	32,94 07	28,096 00	498 20	4 316 87
Rhein,	22 811 00	5,868 00	5,321 41	33,998 41	16,800 00	13,572 33	3,626 05
Robert Blum,	12,733 33	2,799 43	5,727 39	21,26 15	3,800 00	1,658 97	15,8 2 18
Reliance,	9,539 51	217 50	1.591 70	11,347 71	9,600 00	31 00	1.7 6 71
Seventh,	6,788 06	781 00	3.073 92	10,642 98	150 00	9,091 38	1,601 60
Schuylkill,	29,301 00	6,631 00	35,703 17	72 635 17	35,600 00	23,229 17	10,220 70
Stephen Girard Saving, Loan and Buildiug Association,	4,228 00	338 07	2,862 48	7,428 55	1,000 00	4,450 75	1,977 80
Security,	.	.	.	13,518 45	15,000 00	3,740 89	366 72
Standard,	14,952 00	3,308 12	7,127 65	25,387 78	11,750 00	3,812 46	632 37
Workingmen's Club,	4,205 75	581 56	1,271 14	6,058 44	4,305 00	3,525 65	142 15
Wissahickon,	. . .	. . . .		39,227 49	.	. .	. .
Franklin,	9,966 00	. . . .	2,697 60	12,663 60	3,276 00	6,681 82	2,705 78
Southwark,	20,419 47	. . . . .	1,479 48	21,898 95	11,202 30	8,555 43	2,141 22
Philadelphia,	2,806 60		296 38	3,102 38		1,2 0 64	1,901 74
Safe Deposit,	10,632 45	2,587 50	14,117 85	27,337 80	16,350 00	10,916 99	1,297 24
Home,	13.181 61	3,505 50	4,852 86	21,539 97	18,200 00	2,392 42	423 53
League Island,	7,893 02	.	4,959 15	12,852 17	1,629 00	10 200 85	1,022 22
Powelton,	12,639 12	4,437 80	28,101 64	45,178 56	19,900 00	23,191 09	2,492 99
Morton,	12,211 31	3,915 21	33,017 60	49,144 12	15,600 00	27,110 22	6,433 90

FUND ASSOCIATIONS—*Continued.*

ASSETS.						LIABILITIES.			
Total.	Loans secured by real estate.	Other loans.	Real estate and other securities.	Cash on hand.	Total.	Amount due stockholders, being the amount paid by them as stock.	Surplus, being the net earnings of the association.	All other liabilities.	Total.
$47,767 81	$117,500 00	$21,400 00	$8,088 41	$4,898 67	$151,887 08	$107,703 00	$43,931 43	$252 65	$151,887 08
4,812 58	10,100 00	.	3,766 86	423 86	13,690 72	10,131 00	1,459 20	1,814 83	13,435 03
15,539 88	37,900 00	3,400 00	9,067 26	937 33	51,244 59	40,488 50	8,702 95	1,953 14	41,244 59
40,807 32	77,500 00	. .	16,182 40	6,797 17	100,401 57	98,377 57	2,021 00	. . .	100,401 57
68,662 95	107,200 00	41,200 00	37,615 85	9,659 02	185,674 87			. . . .	185,674 87
50,077 98	1,800 00	7,400 00	3,110 00	1,370 24	13,680 24	33,099 50	8,012 74	. . . .	41,112 24
16,388 49	34,400 00	2,800 00	5,645 73	. . . . .	42,845 73	. . . . .	. . .	. . . .	42,845 73
5,132 33	4,900 00	100 00	182 42	523 24	5,705 66	. . . . .	. . . . .	. . . .	5,705 66
12,371 50	65,400 00	3,200 00	. . . .	675 76					
16,607 00	31,800 00	.	.	59 19	31,859 19	24,745 00	4,512,89	. . .	29,257 89
13,946 70	46,000 00	200 00	1,290 45	. . . .	47,190 45	33,735 00	13,252 40	. . .	46,987 40
6,386 21	. . .	. . . .		. .	13,023 72				
31,129 22	284,750 00		2,628 79	356 53	287,135 32	171,260 00	106,885 60	8,989 72	287,135 32
29,232 79	51,400 00	2,600 00	4,699 14	53 70	58,752 84	42,700 00	10,505 08	5,547 76	58,752 84
7,879 64	100,950 00	. . . . .	7,000 00	6,889 91	114,839 91	73,721 00	39,308 03		113,029 03
2,990 34	20,400 00		4,111 50	269 22	24,783 72	15,170 00	6,880 47	3,116 00	25,166 47
28,480 23	129,000 00	1,600 00	1,425 00	1,177 76	. . . .				
14,845 68	82,400 00	. . . . .	. . .	9,217 71	91,647 71	63,500 00	26,532 31	. . . . .	90,032 31
16,418 51	67,600 00	. .	1,600 00	2,404 85	71,604 85	52,849 00	15,811 37	.	68,660 37
15,936 81	90,000 00	1,900 00	274 87	243 37	92,418 24	55,483 00	36,855 24	75 00	92,418 24
14,373 93	18,400 00	800 00	2,271 61	2,369 09	23,840 73	19,812 00	3,198 73	830 00	23,840 73
8,296 71	45,200 00		3,767 57	70 79	49,038 36	32,401 00	16,637 36	. . . .	49,038 36
11,718 44	4,700 00	35,300 00	808 51	4 72	41,231 23			. . . .	41,206 23
146,748 35	67,600 00	100,600 00	620 00	2,420 00	171,240 00	111,037 50	61,746 13	. . . . .	172,783 63
10,305 85	.	. . . . .	. .	. .	51,388 76	30,462 00	19,243 86	. . . . .	49,705 86
33,240 31	81,937 25	. . . . .	7,274 00	1,212 77	90,424 02	69,165 00	21,259 02	.	90,424 02
11,339 54	17,500 00	. . . .	185 59	1,273 47	18,958 97	16,021 59	1,365 00	1,572 38	18,958 97
7,803 32	18,600 00	600 00	3,361 45	1,427 39	23,988 84	18,546 00	5,051 15	391 68	23,988 83
18,342 67	15,300 00	200 00	92 96	2,230 50	17,823 46		. . . . .	. .	17,823 46
6,815 87	3,200 00	800 00	1,317 95	841 05	6,162 00	5,832 00	. . . .	330 00	6,162 00
28,485 81	110,800 00	. . .	17,235 73	675 29	128,711 02	. . . . .	. . . .	. . . .	128,711 02
37,745 02	. .	. .	. .	. .	133,598 16	. . . . .	. . . .	. . . .	133,598 16
9,835 89	18,000 00	584 00	219 96	706 17	19,510 13	. . . .	. . . .	. . . .	19,510 13
23,096 62	. . . . .	. . . . .	. .	. .	86,747 84			. . .	86,747 84
4,374 33	12,800 00	. . . .	115 46	1,550 26	14,465 72	11,806 00	2,500 35		14,306 35
5,374 38	15,400 00	100 00	3,384 02	12 91	18,896 93	11,184 00	3,042 20	4,670 73	18,896 93
9,616 41	36,000 00	200 00	5,127 79	306 49	41,634 28	27,304 00	12,696 28	1,634 00	41,634 28
191,331 61	299,006 25	65,600 00	3,941 12	267 19	368,754 56	302,694 00	66,060 56		368,754 56
36,426 11	100,500 00		4,215 56	7,937 57	112,653 13	81,708 00	30,933 93	11 20	112,653 13
9,789 81	7,700 00	600 00	361 45	5,439 08	14,100 53	13,062 00	235 66	802 87	14,100 53
15,136 29	38,300 00	5,600 00	102 60	93 33	44,095 93	22,902 00	4,731 83	16,462 10	44,095 93
20,019 66	76,800 00	7,000 00	15,125 00	5,443 31	104,368 31	67,812 91			
10,591 99	21,300 00	10,950 00	8,733 12	5,464 12	46,447 24	30,834 00	15,642 54	69	46,477 23
17,773 80	53,300 00	3,500 00	5,617 01	6,603 43	69,020 44	51,744 00	17,029 69	246 75	69,020 44
39,330 13	142,000 00	12,000 00	11,476 00	48 87	165,464 87	. . .	. .		165,464 87
32,941 07	122,300 00	5,300 91	1,660 00	1,022 20	130,293 13	75,012 00	14,112 00	41,169 13	130,293 13
33,998 41	111,000 00	9,000 00	5,630 73	1,543 98	127,174 71	92,267 00	33,579 71	1,328 00	127,174 71
21,261 15	40,800 00		7,533 75	2,920 76	51,254 51	35,065 50	13,022 51	. . .	48,088 01
11,347 71	9,600 00	. . . .	412 53	34 85	10,047 43	8,700 00	1,347 43	. .	10,047 43
10,842 98	16,678 71	.	. .	. .	16,678 71	14,782 24	1,896 47	. .	16,678 71
69,049 87	110,794 45	3,515 00	18,204 60	4,814 22	137,328 27	108,760 00	28,491 25	77 02	137,328 27
7,428 55	4,200 00	450 00	4,339 52	198 70	9,187 22	. . .	. . . .	. . . .	9,187 22
19,107 61	60,900 00		1,987 30	895 48	63,782 78	45,846 00	17,936 78	. . . . .	63,782 78
16,194 83	67,150 00	2,479 82	3,844 97	9,192 94	82,667 73	60,024 00	22,643 73	.	82,667 73
7,972 89	8,675 00	3,080 00	192 88	30 52	11,978 40	10,344 00	1,451 96	182 44	11,978 40
39,227 49	. .	. .	.	.	116,810 24		.		116,810 24
12,603 60	41,400 00	. . . .	2,633 11	374 35	44,407 46	25,140 00	18,531 26	733 20	44,407 46
21,898 95	65,800 00	.	4,232 20	1,301 86	71,334 06	55,284 00	14,264 23	892 77	70,441 29
3,462 38	14,600 00	2,600 00	2,192 03	225 46	19,617 49	9,025 00	8,253 94	2,338 55	19,617 49
28,564 23	48,000 00	6,400 00	7,500 00	7,428 00	. .	45,006 00	20,708 84	6,000 00	
21,015 95	73,550 00		4,750 84	524 02	78,824 86	55,062 00	23,762 86	. . .	78,824 86
12,852 17	32,800 00	1,807 71	7,750 00	40 43	42,398 14			. . . .	39,699 33
45,584 08	62,900 00	7,497 70	19,999 27	272 15	90,669 12	58,937 52	31,731 60		90,669 12
49,144 12	71,611 00	. . . . .	12,935 04	. . . .	84,516 04	59,328 00	24,268 62	949 42	84,546 04

BUILDING, LOAN, AND SAVING

NAME OF ASSOCIATION.	RECEIPTS FOR THE YEAR 1880.				DISBURSEMENTS FOR THE YEAR 1880.		
	Dues.	Interest.	All other sources.	Total.	Loans.	Shares withdrawn.	Rent, salaries, and other expenses.
Pike county.							
Matamoras,	$2,866 00	$819 31	$606 79	$4,292 10	$2,982 00	$1,154 76	$155 34
Schuylkill county.							
Ashland Saving Fund and Loan Association,	14,398 00	7,969 01	34,640 33	57,007 34	43,800 00	4,385 75	8,821 61
Citizens' Saving Fund and Loan Association,	16,278 00	2,506 82	7,578 43	26,363 25	25,000 00	129 96	1,233 29
Donaldson Saving Fund and Building Association,	3,734 00	2,520 50	479 10	6,733 60	5,900 00	108 05	844 45
Equitable Saving Fund and Building Association,	6,695 90	3,478 72	1,266 57	11,381 19	1,316 00	5,876 22	1,550 83
Farmers',	1,095 98	571 38	177 55	1,844 91	720 00	464 42	660 49
Frackville Building and Saving Fund Association,	676 39	. . . .	3,231 23	3,907 62	. . . . .	3,512 31	370 94
Pine Grove Building and Saving Fund Association,	6,565 00	164 00	272 75	7,001 75	6,490 00	. . . . .	147 00
Shenandoah Saving Fund,	6,299 62	. . . . .	3,941 19	10,240 81	7,888 00	156 78	1,588 21
Tremont Saving Fund Association,	5,043 00	2,861 84	2,105 55	10,010 39	2,200 00	5,821 96	2,006 11
Susquehanna county.							
Mutual B. L. & S. Ass'n,	10,266 00	5,534 55	2,705 04	18,505 59	15,660 00	1,468 62	1,376 97
Venango county.							
Workingmen's,	7,474 80	6,047 95	9,898 80	23,421 55	384 00	16,742 13	6,295 42
Washington county.							
Washington,	3,883 00	1,866 00	3,986 95	9,735 95	. . . . .	6,466 52	269 43
Mechanics',	3,125 67	1,126 65	1,689 19	5,941 51	. . . . .	3,294 11	1,201 34
Westmoreland county.							
Greensburg,	8,483 00	3,608 95	3,167 45	15,259 40	5,549 00	9,748 16	235 47
West Newton,	9,975 60	8,834 48	9,957 73	23,767 81	5,700 00	6,697 25	11,370 56
Scottdale,	2,319 49	726 15	743 59	3,789 23	1,500 00	1,606 36	632 87
York county.							
Goldsboro',	1,146 25	360 50	13 74	1,520 49	1,162 50	. . . .	353 02

FUND ASSOCIATIONS—*Continued.*

ASSETS.						LIABILITIES.			
Total.	Loans secured by real estate.	Other loans.	Real estate and other securities.	Cash on hand.	Total.	Amount due stockholders, being the amount paid by them as stock.	Surplus, being the net earnings of the association.	All other liabilities.	Total.
$4,292 10	$9,903 00	. . . .	$1,400 00	. . . . .	$11,303 00	$10,885 00	$418 00	. . . .	$11,303 00
57,007 36	103,000 00	. . . . .	16,760 03	. . . . .	119,760 03	68,712 00	40,130 31	$10,917 72	119,760 03
26,363 25	54,000 00	. . . . .	3,305 08	$120 91	57,425 99	39,588 00	15,182 77	2,655 22	57,425 99
6,852 50	29,600 00	$22,700 00	2,274 00	324 00	54,898 00	32,640 00	22,026 00	232 00	54,898 00
8,743 05	73,800 00	6,800 00	30,892 52	3,191 27	114,683 79	71,394 13	43,254 72	34 94	114,683 79
1,844 91	. . . .	. . . . .	.	. . .	11,333 00				
. . . . .	3,925 00	. . . . .	2,100 00	34 37	6,059 37	13,000 00	. . .	. . . .	13,000 00
6,547 00	6,400 00	. . . .	349 76		6,749 76				
9,632 99	41,000 00	. . . . .	9,244 77	110 58	50,355 35				
10,028 07	77,600 00	1,000 00	14,773 33	36 77	93,410 10	27,636 00	176 00	5,896 14	33,708 14
18,505 59	96,200 00	. . . .	5,894 38	98 23	102,192 61	56,716 25	44,246 36	1,230 00	102,192 61
23,421 55	115,710 00	1,773 47	18,400 80	10 48	135,894 75	59,424 00	66,720 75	9,750 00	135,894 75
9,735 95	30,600 00	. . . .	2,864 72	11 35	33,476 07	20,416 00	13,060 07	. . . . .	33,476 07
4,495 45	19,000 00	. . . . .	2,362 00	1,823 05	23,185 05	14,490 00	8,695 05	. . . . .	23,185 05
15,532 63	57,600 00	1,917 35	11,605 65	305 52	71,428 52	36,168 00	35,260 52	. . . .	71,428 52
23,767 81	63,800 00	. . . .	4,376 24	10,787 79	78,964 03				78,964 03
3,789 23	12,200 00	. . . . .	580 09	534 32	13,314 41	7,324 58	4,912 39	1,077 44	13,314 41
1,515 52	5,500 00	. . .	. . .	4 97	5,504 97	4,576 00	817 52	111 45	5,504 97

BITUMINOUS.

FIRST DISTRICT—William Wilcox, Inspector.

To the Honorable A. K. DUNKEL, *Secretary of Internal Affairs of the Commonwealth of Pennsylvania:*

SIR: I have the honor herewith to submit my fourth and last annual report, unless re-appointed, of the inspection of bituminous mines in the first bituminous coal district for the year ending December 31, 1880. I have made a tabulated report of all casualties, and a separate report of all serious accidents which have occurred the past year, of the nature and cause of those accidents I have spoken more fully in another part of this report. The total number of casualties were 146; many of them were of a slight nature, and should not have been reported, but the operators reported them to me. The number of fatal accidents are twenty-eight, against thirty-six for 1879. The number of non-fatal accidents being one hundred and eighteen. The number of widows are fourteen, and for 1879 they were sixteen. The number of orphans are 45, against sixty-five for 1879. It is very gratifying to be able to say that while the loss of life has been eight less, and the number of orphans less by 20 than in 1879, yet we have been able to mine and ship to market 2,113,322 tons of coal more than we did in 1879. In 1879 a life was lost for every 279,026 tons produced, whilst in 1880 the output has been 434,223 tons per life lost, and although fifty per cent. of the mines in the district generate explosive gas, I am glad to be able to say no life has been lost from that cause. The number of employés has been increased, as per estimate, from 18,120 in 1879, to 23,364 in 1880. The number of mines has also been increased by twelve, and the number operated by twenty. During the year just past many new mines have been opened, and old ones which have not been run for years have been started up and are now being operated. The older mines have received some attention, many substantial improvements being made. At some of the mines ventilating furnaces have been built; at others, ventilating fans have been erected. Still, there are some of the mines not what they should be. The bringing into force an act having for its object the prevention of accidents incident to an industry, which, perhaps of all others, is surrounded by the most dangerous conditions, was a matter requiring careful judgment, both with regard to the financial interest of mine owners on the one hand, and the necessity of enforcing provisions to insure the safety of the workmen

on the other. It was apprehended that inspectors would find a difficulty in compelling the compliance of owners and superintendents with the requirements of the law, but further experience has proved this to be the exception, rather than the rule.

The effect of the operation of the law for the past three years, has been to induce a new feeling of responsibility on the part of coal mine owners and superintendents, with regard to the method of working their mines, and this can only be increased in degree, as the necessity of observing the law becomes to them more apparent, and the inspector is able to make more frequent visits to the mines in his district. When I had the honor of being appointed mine inspector, I was not unmindful of the high duties devolving upon me, nor the great responsibility of the charge intrusted to my care, in the protection of the health and lives of those over whom I was placed; but the principal difficulty I have had to contend with has been the great number of mines in the district and the large amount of territory to travel over. For a mine inspector to be useful and efficient, he should be able to make frequent visits to the mines, so as to gain a perfect knowledge of their workings. To say that one visit a year is sufficient for the inspector to keep the mines in condition, is a mistake. However, year by year, since the passage of the law, the reins have been drawn tighter, and although the condition of some of the mines is by no means satisfactory at the present time, a great deal has been done by owners and managers towards establishing precautions against accidents, both by the expenditure of money in effecting improvements for safety, and by the observance of rules designed to establish the better working of the mines. Notwithstanding these facts and anything which the inspector may do in the matter, accidents of the most serious nature may occur, and it is well that mine owners and their superintendents, as well as all persons employed in and about the mines, should keep the fact in mind that the real safety of their mines depends upon increasing vigilance shown by themselves in taking every precaution against danger of all kinds.

Since my appointment I have labored faithfully to see the provisions of the law enforced, and now, with friendship and gratitude to all who has anyway assisted me in my official duties in carrying out the provisions of the law,

I remain, very respectfully, yours,

WILLIAM WILCOX,

Bituminous Mine Inspector, First District, Pennsylvania.

MANSFIELD, *February 4, 1881.*

On the 1st of January, 1881, I sent a copy of the circular below to each of the operators in the first district, asking them to return answers to the questions therein. In answer to this circular, I received reports from one hundred and thirty-five mines, most of the returns being prompt and within the time fixed by the circular.

OFFICE OF THE MINE INSPECTOR OF THE FIRST
BITUMINOUS COAL DISTRICT OF PENNSYLVANIA,
MANSFIELD VALLEY, ALLEGHENY COUNTY, PA.

To . . . . . :

My official term expires May 15, 1881, therefore this will be my last annual report, unless re-appointed. I desire to make as full and correct report as possible of the amount of coal mined, number of men and boys employed, and the number of days worked, etc. To enable me to do this I require your assistance. The information sought is of great importance to all engaged in mining coal, manufacturing coke, and, in fact, to the manufacturing interest in general throughout the whole United States; and no one can give this information but you. The information furnished by you will be held strictly *private* and *confidential*, and will only be published in the aggregate production of the district, except at your request.

Below will be found a list of questions I desire you to answer and return to this office not later than January 15, 1881.

Total number of tons mined of 2,000 pounds each?
Number of mines operated by you in 1880?
Average price paid for mining per ton?
Average number of persons employed inside?
Average number of persons employed outside?
Average number of mules employed at work?
Number of days worked in 1880?
Number of coke ovens built in 1880?
Number of coke ovens operated by you in 1880?
Improvements made in 1880?

In reply to above circular, I received reports from one hundred and thirty-five mines. Below will be found the aggregates from those mines, as reported:

Number of mines reported, ...	135
Amount in tons, as reported, ...	6,956,848
Persons employed inside, reported, ...	10,441
Persons employed outside, reported, ...	2,837
Number of mules, reported, ...	1,044
Number of days worked, reported, ...	25,307
Coke mines, reported, ...	45
Number of coke ovens built in 1880, ...	1,217
Number of coke ovens operated by the 45 mines, reported,	5,219
Amount paid for mining the above, ...	$3,981,950 51

Then, using the above as a basis of calculation, we have the following tables:

Total number of mines in the district, ...	260
Number operated in 1880, ...	236
Number not operated, ...	24
Total production of coal from the two hundred and thirty-six mines operated, (estimated,) in tons, ...	12,158,248

PLAN
SECTION & DETAILS
OF
BEE-HIVE COKE OVENS
1880

SECTION

Number of persons employed inside,	18,172
Number of persons employed outside,	5,192
Total number of persons employed,	23,364
Total number of mules employed,	1,888
Number of mines operated,	236
Average out-put per mine, in tons,	51,518
Average price paid for mining alone,	$57\frac{223}{1000}$
Average number of miners at each mine,	77
Average number of employés outside,	22
Average number of employés per each mine,	99
Average number of days worked,	188
Average out-put in tons per miner per year,	669
Average out-put per miner per day, in tons,	$3\frac{56}{100}$
Average out-put per person employed per year,	520
Average amount earned per each miner,	$382 82
Average amount earned per day per miner,	2 03

The above estimate of the out-put of coal and number of persons employed is a fair one, being below rather than above what a full report from all the mines would show. As will be seen, there has been a large increase in the coal production, amounting to 2,113,322 tons, or more than 20 per cent., during 1880; and the number of employés has been increased 5,244, or an increase of more than 25 per cent. The amount spent on improvements is very hard to estimate, but is, no doubt, more than one million dollars. The greater part of this sum has been spent in opening new mines and building new coke works in Westmoreland and Fayette counties, where five new works are getting ready to commence manufacturing coke. These new works will have nearly 1,000 ovens, and, when in full operation, will add to the already great production of coke at least 1,500 tons per day.

The following tables will be found interesting to the general reader:

	1878.	1879.	1880.
Estimated amount of coal produced in tons,	9,372,881	10,044,926	12,158,248
Total number of lives lost in and about the mines,	32	36	28
Total number of accidents in and about the mines,	93	129	146
Amount of coal produced in tons per life lost,	292,902	279,026	434,223
Number of lives lost from explosive gas,		4	
Number of deaths from falls in the mines,	25	24	20
Number of persons employed per life lost,	563	503	834
Number of persons having legs broken,	7	22	30
Estimated amount of coal produced in tons per each non-fatal accident,	153,653	108 009	103,036
Estimated amount of coal produced in tons per each accident,	100,805	77,867	83,276
Estimated number of persons employed in the mines,	15,198	14,788	18,172
Estimated number of persons employed outside the mines,	2,821	3,332	5,192
Estimated total number of persons employed in and about the mines,	18,011	18,120	23,364
Number of mines operated the past three years,	217	216	236
Number of lives lost by wagons,	2	6	5
Number burned by explosive gas,	6	12	12
Number of widows,	18	16	14
Number of orphans,		65	45
Number of non-fatal accidents,	61	93	118

Number of lives lost under twenty-one years of age, ... 8
Number of lives lost above twenty-one years of age, ... 20
Number of casualties to persons under twenty-one years of age, . . 31
Number of casualties to persons over twenty-one years of age, . 115

COUNTY.	Number of mines.	Not operated in 1880.	Mines opened in 1880.
Allegheny,	80	4	3
Fayette,	62	8	12
Westmoreland,	58	7	4
Washington,	38	1	1
Somerset,	12	1	3
Bedford,	10	3	
Total,	260	24	23

Number of mines produeing coal for coking:

Fayette county, ... 50
Westmoreland county, ... 24
Allegheny county, ... 7

Total, ... 81

New mines about to commence mining and shipping:

Fayette county, ... 5
Westmoreland county, ... 2
Washington county, ... 2
Allegheny county, ... 1

Total, ... 10

NEW MINES AND IMPROVEMENTS.

Mr. Munhall has opened a new mine on the Monongahela river, near Homestead, Allegheny county, and has built a river tipple and outside road from the river to the mine. This road is over two miles long, and it is intended to put on a locomotive to haul from the mines to the river.

The Phœnix Gas Coal Company have commenced a new mine at Idlewood station, Allegheny county. This mine is located on the Pan-Handle railroad, and are now shipping coal to Pittsburgh market.

In Westmoreland county, near Greensburg, Coulter & Huff have their new slope in operation, and commenced mining and shipping early in the spring, and are now mining about five hundred tons per day.

Tarr, Dillinger & Co. have sunk a new shaft, opened a drift for outlet, and built a number of coke ovens at Tarr station, on the South West Pennsylvania railroad, in Westmoreland county. They are now shipping coke.

Robert Latimore has sunk a new slope at the White Heath mines, near West Newton, and has put it in operation.

The West Newton shaft has been pumped out, and very extensive improvements, both under and above ground, for large shipments over the

Mrs Banning
Wheeler
Slopes
James Blackstone

Oct 16th 1880

ittsburgh division of the Baltimore and Ohio railroad. This shaft has remained idle the last five or six years. This is, also, in Westmoreland county.

The Westmoreland Coal Company have completed their slope for second opening at their new shaft on the Pennsylvania railroad, and are now shipping a large quantity of coal from this mine to the eastern market.

John Blythe & Co. have opened a new drift mine near Shanner station, on the Pittsburgh division of the Baltimore and Ohio railroad, and are now shipping coal to Pittsburgh market. These works commenced mining coal in July of last year.

C. P. Markle & Sons opened the Bessemer coke mines in the spring of 1880, built seventy new coke ovens, opened two drift months, sunk a shaft for ventilation, and erected a number of first class dwelling houses for their workmen. They are now shipping a large quantity of coke from their two works, numbering one hundred and seventy ovens.

The Aliee mines have been opened this year by James M. Schoonmaker. This is a first class slope; double track, and a shaft for ventilation. The tipple, and other improvements, are of good, substantial character. They have also built two hundred coke ovens, and the dwellings around the mines make a small town. Mr. Schoonmaker operates five hundred and fifty-nine coke ovens at his four coke works.

At the Standard mines, Mt. Pleasant, A. A. Hutchinson & Brother have completed their air-shaft for ventilation, and commenced in the fall of 1879. They have also built a new champion ventilator at the mouth of the slope, and completed their coke ovens, which are now in full blast. The ventilator is doing splendid work, giving good satisfaction. Another of these ventilators has been erected at the Morewood mines, operated by Frick & Co. This fan is manufactured by Fraser & Chambers, of Chicago; a drawing of it appeared in my first annual report.

The Morrell Slope was commenced in 1879, by the Cambria Iron Company of Johnstown, and completed in 1880. It is double track seven hundred feet long, sunk at an angle of ten degrees dip. Since the slope was completed they have sunk a shaft for man way, and another for outlet for air, where a fan will be located. They have also built four hundred coke ovens and a number of dwelling houses, with other improvements of a very substantial character. These works are now in full blast, situated one mile south of Connellsville, Fayette county. A map of these works appears with this report.

The Connellsville Gas Coal and Coke Company have put down a new shaft a little south of Connellsville, and are busy erecting coke ovens and dwelling houses, and making other improvements.

In Fayette county, B. F. Kester & Co. has opened a drift mine on the Mount Pleasant branch of the Baltimore and Ohio railroad, built fifty coke ovens, which are now in operation.

Near the latter place, James Cochran & Co. have opened the Clinton mine, also a drift, and built fifty coke ovens, which are now in full blast.

Rafferty & McClure have opened a new drift near the Painter mines; built seventy coke ovens and fifteen tenement houses. They have also bought the Black Diamond mine, and all three are in full operation.

James Colvin & Co. have opened a slope at Dunbar, and built eighty coke ovens, which are now in operation. These works were commenced April 1, and completed in May.

The Cleveland Rolling Mill Company are opening a new drift mine, and building a number of coke ovens on the south side of the Youghiogheny river at Dawson station, where a branch road is being built from the South-West Pennsylvania road.

Jacob Newmyer has opened a drift mine at the head of the Hickman branch, near Dawson station, but has not commenced shipping.

Horner & Roberts, whose mine is situated near Elizabeth, Allegheny county, have been making some very extensive improvements at their mines. The pit is located two and a half miles back from the Monongahela river, and here a locomotive engine is employed to haul from the pit mouth to the river. The road has a grade of about one hundred feet to the mile, running back to the coal outcrop, and thereby rendering the use of an incline plane unnecessary. This mine being very large, a great amount of coal is handled, rendering it necessary to use a large number of mules for inside hauling. But in driving the main-headings, they were found to dip. The coal having to be hauled against the grade, was very expensive. To obviate this, Mr. Roberts resorted to the use of machinery for inside hauling. This machinery consists as follows: A stationary engine, consisting of two cylinders twelve by thirty inches; one boiler of steel, two flues, sixteen inches. Boiler is twenty-eight feet long by forty-two inches in diameter. The drums are four feet in diameter. Hauling-out rope, one inch of steel. Hauling-in rope, five eighths, made of steel. A telephone connects the engine house with the inside parting in the mine, half a mile back, and forty one and a half ton wagons can be hauled up a steep grade, each trip occupying but a few minutes. Mr. Roberts informs me everything is complete in every respect. The engine and other machinery was built and put up by J. B. Millholland of Pittsburgh, Pennsylvania. Mr. Millholland has earned for himself and firm a good reputation for the manner in which he does his work. He knows no such word as failure.

The Stewart Coal and Iron Company have commenced mining at their new slope, near Uniontown, Fayette county.

The Connellsville Coke and Iron Company have sunk a shaft two miles south of Connellsville. The shaft is three hundred and seventy-two feet deep to the bottom of the Connellsville coal seam. A section of strata passed through will be found with this report. They have built two hundred good coke ovens, and are erecting good substantial improvements around the works.

The Chicago and Connellsville Coke Company commenced their new colliery early in the spring, and the shaft is now down, the Connellsville

COLUMNAR SECTION

TAKEN AT

CONNELLSVILLE COKE AND IRON CO'S SHAFT No. 1.

Luisearring Bumbar Township.

FAYETTE CO.

PA.

Scale 20=1"

MATERIAL	Depth	Section	Thick	Remarks
Coal			3	0
Yellow and Blue Clay			83	0
Quick sand with Boulders			5	0
Black Slate			12	0
Black Slate	384		8	0
Black Shale			28	0
Coarse Rock in 3 ft ledges with thin partings of Shale			53	0
Fire Clay or Blue Mould			5	0
Black Shale or Soapstone Shale			16	0
Black Shale			4	0
Brown Limestone			3	0
Black Slate			2	0
Brown Limestone			4	0
Soft Blue Shale			6	0
Brown Limestone			4	00
Black Shale			4	00
Fire Clay or Blue Mould			5	0
Black Slate			6	0
Light Grey Sandstone			3	0
Blue Mould Slate			14	0
Light Grey Sandstone			3	0
Black Slate			3	0
Limestone & Black Slate in a confused mass			3	0
Gannon Rock very white and close			3	0
Brown Limestone with some work			4	0
portions of Slate in centre				
Grey Sandstone			2	0
Black Slate			3	0
Dry dark Limestone			3	0
Light Limestone			4	0
Limestone a shade darker than above			4	0
Fire Clay			7	0
Limestone in 3ft ledges with Slate partings of Shale			30	0
Fire Clay or Blue Mould			5	0
Limestone in 3ft ledges with Slate partings of Slate			35	0
Fire Clay or Blue Mould			7	0
COAL	827 0		3	2
Sandstone beautiful Blue Grey in ledges from 1'6" to 3' thick parallel beds			36	0
				The stone generally used in constructing Coke Ovens
COAL	894 0			0
Limestone with partings of Slate			5	8
Soapstone Shale			4	4
COAL	944 0		8	0
Limestone in 3ft ledges with Slate partings of Slate			12	0
Limestone very white			4	0
Fire Clay or Blue Mould			18	0
Limestone			3	0
Fire Clay			7	0
Blue Grey Slate			5	0
Black Slate			3	0
Dry Drift COAL	1001 0		5	0
Brown Limestone 3ft ledges			11	0
Sandstone Slate			23	0
Sandstone flagging N Layers			8	0
Sandstone Shale			15	0
Blue Slate			3	0
COAL	1068 0		5	0
Dark sand Slate			41	0
Dry Bone Coal with Slate or Wild Coal and flaggy stone			3	0
CONNELLSVILLE COKE COAL			4	0
	1116 0			

J. H. Taggart Jno

coking seam being ready to commence mining. They are about to start another shaft for second opening, and also for ventilation and drainage. The coke ovens—two hundred in number—are about completed; also a number of dwellings. In sinking, two lives were lost by falling down shaft, and four were burned by explosive gas.

The new mines in Washington county are two in number, the Catsburg mine, opened by the Harlem Coal Company, at Monongahela City, with a capacity of five thousand bushels of lump coal per day. They have also built a new river tipple to replace the one destroyed by the high water.

David M. Anderson has opened a drift mine near Finleyville, on the Pittsburgh Southern railroad, and is shipping to Washington.

On March 1st I sent out the following circular to the superintendents and mining bosses of the First bituminous coal district:

Office of the Inspector of Bituminous Coal Mines,
First District of Pennsylvania,
Mansfield Valley, Allegheny Co., *March 1, 1880.*

To the mine owners, mine superintendents, and mining bosses of the First district of Pennsylvania:

Gentlemen: I wish to call your attention to the mining law, an act entitled "An act providing the means of securing the health and safety of persons employed in the bituminous coal mines of Pennsylvania."

The law requires that all mines shall be properly drained and ventilated, and therefore has fixed the amount of air that shall be circulated through the mines at one hundred cubic feet per minute for each and every person employed in the mine. This has been found by experience to be barely sufficient in all cases to dilute, carry off, and render harmless the noxious gases generating in mines. All good mining authorities agree that this amount is required in all non-fiery mines. In many cases where explosive gas is generated, much more is required to render the workings safe and healthy. Of all the precautions taken to preserve the health and safety of the workmen, proper ventilation and drainage are the most important. I hold if a mine is not well ventilated and drained, it is nothing, and, therefore, not worthy of the name. It should be the chief object of all superintendents and mining bosses to have a plentiful supply of pure air circulating through all the workings at all times, and to see that provisions are made for conducting it to the face of the headings; but this I find to be the chief difficulty with most mining bosses. The most important matter after a good supply of air has been produced, is to see that it is carried to the face of the workings; and to be able to do this good air-ways must be provided of not less than forty feet area. All leaks in stopping and doors must be attended to, and, if possible, the ventilation should be so arranged that should a leak occur it will be carried along with the next split into the workings. All air currents should be divided into separate splits and air-ways, made as large as possible. The outlet should always be the largest, and good air-ways provided for every heading. In many of the

mines in this district I find that from forty to seventy per cent. of the ventilation produced by the furnace is lost before it reaches the face of the workings, the very place where it is needed the most. This occurs by not attending to details as above mentioned. It should be the study of all persons in charge of underground workings how best to attain and put in practice the above suggestions; and those who do not take sufficient interest to make mining a study, are not the proper parties to employ as superintendents and mining bosses. It is absolutely necessary that more attention be paid to these matters, and that competent persons be placed in charge where incompetent ones are now filling the place; and that air measurements be taken regularly every week and reported to the inspector of the district every month, as the law requires. There are several ways of taking air measurements: by powder smoke, naked light, and by the anemometer. None of these are absolutely correct, but the anemometer is as near correct as science can make it, and is much the easiest way of taking air measurements in mines. I have received quite a number of letters from superintendents and mining bosses, asking for information on this subject; therefore, for the benefit of those not acquainted with the rule, I have thought this to be the best way of rendering that information. To ascertain the amount of air circulating with a Byram anemometer, select a place in the intake or return air-way, having a uniform section; let the instrument run a short time to gain full speed, then test it one minute by the watch and note the velocity. Next ascertain the area of the heading where the test was made. Say it is seven feet wide and six feet high. Six feet multiplied by seven feet equals forty-two square feet; and say the velocity is three hundred and fifty feet per minute. Then multiply the area of the heading and the velocity together, thus: Forty-two multiplied by three hundred and fifty equals fourteen thousand seven hundred feet per minute. By this simple rule air measurements can be made in any part of the mine where there is sufficient air in motion to run the anemometer.

To find the amount circulating by powder smoke, select a part of the heading having a uniform section of one hundred feet in length, and ascertain the cubical contents. If the heading be seven feet wide and six feet high, the cubical contents will be seven multiplied by six multiplied by one hundred, equals four thousand two hundred cubic feet. Set off a flash of powder at the windward end, and note the time taken by the smoke to travel the distance of one hundred feet. Suppose it be ten seconds, the quantity of air in circulation will be as follows: As $10 \div 4{,}200 \times 60 = 25{,}200$ cubic feet per minute. The last method is not so handy as the first, and requires more calculation.

The subject of accidents in and about the mines claims our undivided attention, but more particularly that of every mining boss. It is his duty to visit the men as often as possible, to give instructions and directions as to the safe and proper manner of working their places. The total number

of accidents in 1879, was one hundred and twenty-nine. Of these thirty-six proved fatal. Twenty-four of them were caused by falls of coal and slate, and six by wagons. Many of these lives were lost in a reckless and careless manner, and to prevent them in future will require stricter discipline to be enforced amongst the miners, by the mining bosses in charge. More care and attention must be given on their part. Men must not be allowed to work under dangerous slate, without first securing it with timber, to prevent accidents.

There were a number of accidents from falls of coal the past year. I would suggest that where the coal is loose and dangerous, sprags be used to prevent it from falling whilst under-mining is being done. I desire to call the attention of those mining bosses where the coal seam is high, more particularly to this matter, and urge them to enforce this rule amongst the men under their charge. Strict attention to details of this kind on the part of mining bosses, will prevent many accidents to workmen. A good supply of timber, of suitable lengths and sizes, must be furnished. They should be squared at the ends, and be placed in the working-places of the men. Also proper instructions given as to its uses, and the working-places made as safe as possible. Trusting you will give these matters your strict attention, that the record of accidents may be reduced during the year upon which we have now entered, and that the health and lives of the workmen may receive proper protection,

I remain very respectfully yours,

William Wilcox,
Inspector.

VENTILATION.

Ventilating furnaces have been built at the following mines this year:

T. B. Robbins & Co. have erected a furnace at the Willow Grove mine.

S. B. Gregg & Brother have built a small furnace at the Glendale mine.

The Imperial Coal Company have erected two good furnaces, one at the Beach Cliff mine, the other at Montour's mine, Montour city.

H. B. Hays & Brother are building one at their Beck's Run mine.

W. H. Brown's heirs have erected one at the Keystone mines.

Lynch & Robinson have built one at the Penny mine.

William Stone's heirs have built one at the William Stone mines.

George Lysle & Sons have built one at the Camden mine.

Thomas Jones & Brother have built one at the Fulton colliery.

Gamble & Risher have built a good furnace at the Banner coal works.

The Harlem Coal Company are building a good furnace at the Catsburg mine.

John Gilmore has erected one at his mine near Webster.

George W. Clark has built one at the Tremont mines.

W. L. Scott & Co. have erected a good furnace at the Ocean mines.

Fox, Kiffer & Co. are building one at the Eureka mine.

A. A. Hutchinson & Brother have built one at the Globe mine.

The New York and Cleveland Gas Coal Company have built one at Sandy Creek, No. 2 mine.

The Westmoreland Coal Company have erected a very good furnace at the South Side mine.

Woods, Schrader & Co. have built a furnace at the Lovedale mine.

FANS.

Ventilating fans have been erected this year at the following mines:

Hartley & Marshall have erected a fan at the Enterprise mine.

John Carlin & Co. have erected one at the Eclipse mine.

H. C. Frick & Co. have erected a Champion ventilator at the Morewood mines.

A. A. Hutchinson & Bro. have erected a Champion ventilator at the Standard Coke Works.

The Chicago Gas Coal Company are preparing to erect a Champion ventilator at the Buffalo mines.

At the time of the passage of the mining law there were a few old furnaces scattered through the district, but very few of which were adequate to produce the required amount of air. All but four of these have been replaced by good substantial structures, and one of the four has been repaired and much improved.

When the law was passed in 1877 the business of mining and shipping coal was very much depressed, everything as it were hung on a thread. Bankrupts were of daily occurrence, and many of the operators found it very difficult to meet the requirements of the law, many being unable to do so from financial difficulties. How to bridge over these difficulties and to enforce the law at the same time was a problem not easily solved. To have enforced the law in all its bearing on many of the weaker operators would involved them in bankruptcy and thrown the men out of work. I found many of the mines very defective, both in ventilation and drainage, and it seemed an enormous task to undertake. There are so many mines in the district, and so scattered, requiring long journeys to be made, and much time to accomplish. With such a state of things, progress the first year was slow, but since business has began to improve, operators have been more ready to make any improvments I have had to suggest with regard to having the mining law carried out in all its details. The benefits arising from good ventilation cannot be over-estimated. When a workman finds his place well ventilated and a good current of pure air passing every working place carrying off all the noxious gases that may be generated by the coal strata, lamps, and the breathing of men and animals, also the smoke from blastings, etc., which vitiate the air, he is enable to perform his day's work with ease and some degree of comfort. There is also a greater degree of safety to workmen when their light burns clear, as they can distinguish objects around, which in darker shades of light would escape their notice. It is gratifying to be able to say complaints of bad ventilation are much less frequent than they were, and would be still less so

if mining bosses would be more prompt in doing their duty. The first thing to do after a good fan or furnace has been erected is to make provision for carrying the air current to the face of all the headings as the law requires. Many mining bosses are unable or neglect to do this; therein lies the great fault. It is quite natural to suppose when a good ventilator has been provided, complaints of bad ventilation should never occur, this is not always the case, however, for the above reasons. There appears to be a wonderful amount of ignorance about ventilation and the means of directing it around the workings existing amongst those in charge of mines, yet this is hardly to be wondered at when we consider that the subject has never been brought to their notice properly. The favorable situation of the great Pittsburgh coal seam for mining has enabled those in the business to open new drifts in every direction, and when fresh air was required, all that was necessary to do was to open another drift mouth. But the coal fields which present such favorable conditions for mining are fast disappearing, and many of the mines now opening will labor under a different condition of things. The openings required by law, and found necessary for the successful operation of the mine, will require to be made at the commencement of operations and a more scientific mode of working adopted; this will have a tendancy to educate both managers and mining bosses in the practical arts of mining, and I venture to say that it will not be very long before a far more advanced class of managers and mining bosses will have charge. This will be caused by the mere necessity of the situation.

WASTE OF COAL IN MINING.

There is no product of nature, of which we have any knowledge, of greater importance to the human family than coal. Not only is it important to us, but it is just as important to future generations, who are to follow in our foot-steps. Nature has been lavish in furnishing us with unlimited coal supply. Not only has this been furnished us, but it has been placed within easy access, and, because of this, it would seem we are mining our coal-fields in a very wasteful manner. A system of mining has grown upon the producers of coal and coke which may, with truth, be called reckless and wasteful. Whilst many operators are beginning to see the evil of this system, and, to their credit be it said, are taking steps to check it, yet many go along in the old way, content with getting out sixty or seventy per cent. of the coal. It seems strange that sharp business men will invest a large amount of capital in building up coal works, buying coal and land at high prices, and then adopt a system of mining which deprives them of thirty or forty per cent. of the coal. This coal is not only lost to them, but to all others, as it is left in such a shape that it is dead waste. I do not wish to be understood as saying that coal can be mined without waste, but I do mean to say that a better system can be adopted, and that from ninty to ninty-five per cent. of the coal in the Pittsburgh seam can and ought to be removed from the mine and sold in market.

Again, when we take into consideration the effect this waste has on the mine, it is more a subject of wonder why it is so strongly adhered to by some operators. On the Monongahela river, where the practice of leaving all the ribs and slack in the gob is carried on, the mine suffers from squeeze. The pillars being insufficient to support the roof, it gradually settles on the gob and broken pillars, this not admitting of sufficient space to allow the roof to fall, a grinding process commences which sometimes lasts for weeks and months, until the roof can make a heavy fall, and remove the weight from the pillars. Often, before this takes place, the heading pillars are ground into slack. In this condition they offer but little resistance as supports, and the heading or headings cave in, and their use, however much desired, are lost, together with all they contain. When this takes place new headings are opened, often at great expense, and the same course persued as before, until another squeeze overtakes them. In such a case as the above, timber is used to little purpose. There is but one relief, the roof must come down, until this is done, and all settled, nothing can be relied on as being safe. There is, also, a great amount of coal left in the mine, in the shape of nut coal and slack, which ought to be utilized. Its value will never be felt until a scarcity of coal takes place.

In the Connellsville coke region the same waste is going on. In some of the mines of that region forty per cent. of the coal is left in the mine. Some of the operators say it will not pay to mine it because it requires timber to support the roof while the pillars are being removed. Others leave the coal in the mine to support the roof, so the ground on the surface will not fall in. But this object will not be attained, in a few years the timber in the rooms will rot, the roof will soften and fall in, leaving a very uneven surface to plow over. This coal, left in the ground, is of far more value than the land itself, as can be seen by the following: 12,000 tons of coal can be mined per acre, if one third of the coal be left in the mine this will amount to 4,000 tons per acre. If we take the surface at one hundred dollars per acre and the royalty at ten cents per ton, then we have the following:

Royalty of 4,000 tons, at ten cents,	$400 00
Value of surface land,	100 00
Loss on each acre of land,	$300 00

LEGAL PROCEEDINGS.

There has been but one case presented by me during the year for the violation of the provisions of the mining law, and that was the case of the Commonwealth against Presly Forsythe, in Washington county, prosecuted and convicted of the violation of the fourteenth section of said law in not reporting the loss of life by reason of accident, which occurred in J. T. Neels' mine, of which he had charge. And to be sure the case would be properly attended to, and not go by default, and to teach a wholesome lesson in regard to the observance of the provisions of the law, I was careful

to be fully prepared with my witnesses, and employed private counsel to aid the Commonwealth officer. But I have to add that after trial, and conviction was secured by the verdict of the jury, without my knowledge or consent as prosecutor, the sentence of the court was suspended so long as the defendant would violate the law no more.

The case was tried at the June term, at Washington, Washington county, His Honor Judge Hart on the bench.

LIST OF SERIOUS ACCIDENTS IN 1880.

On January 8, William Jack, a miner at Cornell & Werling mine, operated by William H. Brown's heirs, had his arm broken while following his employment in the mine. He is a single man, age twenty-five.

Charles Fenney, aged eighteen, a driver at the Walnut Hill mines, was fatally injured under the following circumstances. He was coming out of the main heading with a trip of loaded wagons, and was standing between the first and second wagons when he lifted his head too high, striking the roof. He was knocked off the wagons, some of which passed over him, injuring him very seriously. He was removed to his home and medical assistance procured, but his injuries were such that he died a few hours after it occurred. The deceased was a promising young man, and was well respected by all who knew him. This accident occurred January 19.

William Sethman, a boy of fifteen, had his thigh broken at the Waverly mines, on January 21. He was at work with his father in a rib, and was wedging down some coal, which fell unexpectedly, striking him upon the leg, with above results.

George Keith was instantly killed on January 20, at J. S. Neel mine, situated at Greenfield, Washington county. Mr. Keith was employed as miner, and on above date was at work in a room in the Headly heading, with C. G. Watson and Homer Lewis. The two latter were at work loading a wagon, whilst Keith was at work making a bearing in. The cut was a large one, about seven feet under, when all of a sudden, without any warning, the greater part of it fell crushing Keith to death. He was removed as soon as possible by William Davis, Alexander Donaldson, and others. Presley Forsythe who had charge of the mine, neglected to notify either the coroner or myself, and no investigation was held at the time it occurred, but when making my visit in March, I learned of the accident to Keith. I spoke to Forsythe, and asked him why he had not notified me of the accident at the time it took place, and he plead ignorance of the law, but this was only a weak excuse on his part, as this was the second case of the kind, after both he and Mr. Neel had been made fully aware of the requirements of the law by me. I therefore commenced proceedings against Forsythe, by making an information against him before His Honor L. P. Fry, justice of the peace of California, account of which will be found in another part of this report. Keith left a widow and two children.

U. A Spangler was fatally injured at the Keystone mines, operated by the Keystone Coal Company, situated near Myersdale, Somerset county.

On January 22, Spangler and his mate, Abraham Hay, were at work in room number three in Minkey heading, Hay working on the right-hand side, and Spangler on the butts. Spangler had been under-mining the coal, and was just getting up, when a large mass of coal fell striking him upon the head, knocking him several feet away, and fracturing his skull, and causing his death three hours later. Upon examining the place, I found Spangler had made a bearing-in seven feet long, and in doing so had cut two slips, one in front, and another on the left-hand side. Those slips, and the want of sprags was the cause of the sudden fall of coal, which caused Spangler's death. Spangler not being a practical miner, had likely not noticed the slips or failed to take proper precaution for his own safety. The room was as safe as any in the mine, and was well timbered and in good working order. Spangler left a widow and two children in poor circumstances.

John Daugherty was fatally injured, January 24, by falling slate, at the Umpire mine, operated by John Cunningham & Co., situated at Brownsville, Fayette county. Daugherty, who was not a practical miner, went in the mine to work with Morgan Gaskell as a laborer, and had worked sometime previous to the accident. Upon investigation I found, on the day before the accident occurred Gaskell had fired a blast in the coal, but in boring the hole the drill had entered the slate about four inches, breaking it along the rib side. Neither of the men appeared to notice this, and therefore did not stand a sufficient number of timbers to support the broken slate. Daugherty was standing under this slate loading a wagon, when a large mass of it fell upon him injuring him seriously, and causing his death shortly after. Daugherty left a widow and one child.

On January 26, an accident occurred to Joseph Geiger, age twenty-three, and a married man. Mr. Geiger was a miner, employed at shaft No. 1, Penn Gas Coal Company, Westmoreland county, and while at work in his room a large piece of slate fell, breaking his leg in two places. His wounds not healing satisfactory, the doctors amputated the limb February 15, but he died the same night.

On February 8, the following parties were burned by an explosion of carburreted hydrogen gas in the Catsbird mine, operated by the Harlem Coal Company, in Washington county: Jesse Sowers, age twenty-one; Ben Forsythe, age sixteen; Dan Parkinson, age fourteen; Walter Wesley, age fourteen; James Crumbie, age fifteen, and Albert Haywood, age fourteen. It being Sunday, none of the mine officials were about the mine, and those boys, none of which worked in the mine, collected about the pit mouth. To have a little fun they pushed an empty wagon into the pit, and on going into one of the headings with a naked light the gas exploded, burning all more or less, none very seriously.

Shedderick Lyndsley, employed as a miner at Fort Pitt mine, Fort Pitt station, Allegheny county, was injured seriously while at work in his room, February 24. Lyndsley was loading a wagon, and had neglected to stand up sufficient timber to support the slate under which he was at work when

a fall took place, and he was caught under the slate. His injuries were of an external character, consisting of cuts about the head, face, and breast. This accident occurred through his own carelessness. There was plenty of timber at hand ready for use.

On March 1, Thomas Redman, a colored miner, working at Little Alps mine, was killed, almost instantly, by falling coal. The mine is located in Fayette county, near California, Monongahela river. On the above date Thomas Redman, the deceased, and his brother William Redman, also Wesley Barker, George Barker, James Barker, and William Barker, four brothers, were all at work together in the same place at the time the accident occurred. Upon investigating the cause of said accident I found these six men occupied two places, but to get out a large quantity of coal had all agreed to work in this room and to make a large bearing in, which had taken them about half a day. The pillar which separated this from the next room had been cut through, and the room had been worked loose ended. This admitted of the large inbearing, above mentioned, being made, and also favored the easy removal of the coal. In doing this work these parties had neglected to put up sufficient number of sprags to prevent the coal from falling, and while Redman was lying down under the coal it fell, crushing him in a shocking manner. He was taken out of the mine, but died while crossing the river in a boat. Redman was eighteen years old, and single.

March 2. John W. Geary, aged twenty-two, and a married man, had his leg fractured below the knee by falling slate. This accident occurred at the Cliff mine, operated by Scully & Co., Washington county. Geary, who has the reputation of a good and careful miner, was loading a wagon. Had just knocked down some coal, when a piece of roof slate, weighing twenty or thirty pounds, fell on his leg in such a position as to break it.

Calbert Barnam, a miner, aged twenty, and a single man, was instantly killed March 5, by falling slate. The accident occurred at the American Works, operated by F. H. Corsen, in Washington county. On receiving notice of the accident, I visited the mines to inquire into the cause of said accident. The room where it occurred was number three, in number two heading, and from the evidence of John Kirk, who worked with Barnam, and who was present at the time, I learned they had fired a blast a short time before the accident, which had thrown down a large quantity of coal. This necessarily left a large quantity of slate hanging in a dangerous condition, and Barnam commenced to knock down some coal left on by the shot, standing directly under the slate. Kirk's attention was attracted to his position, and called to him to get from under the slate, but before he could do so the slate fell, with above results.

M. Haywood, a miner, employed at the Catsbird mine, Harlem Coal Company operators, was slightly burned by explosive gas. This gentleman is father of one of the boys burned here February 8, and was employed driving heading. The pit boss had warned him not to go into his place until he had been in to examine it for gas. But Haywood, being anxious

to do big day's work, entered the mine at three o'clock in the morning, went to his place, took off his coat, and commenced to brush out the gas. After he thought the place was clear he struck a match; the gas not being all out, fired on him. This accident was clearly his own fault. He had no business to go there until told by the mining boss it was safe. This occurred March the 1st.

On March 3d, Ferdinand Waterman, a miner at Heberman mine, Joseph Walton & Co., operators, was hurt seriously by falling roof slate. The accident took place in room number seventeen, in thirteen heading, where Waterman and his mate, Edward Scott, was at work. Waterman was looking for a wedge in the gob, when the roof fell on him. He was removed to his home, when it was found both legs had been fractured by the fall, also other injuries of a serious nature. Inflammation set in, and he died April 5.

On March 17, Francis McNeil had his leg broken by fallen slate. The accident occurred at the Cincinnati mine, J. S. Neel, operator, in Washington county. McNeil had just finished loading a wagon, the last for the day. And wishing to take down the slate, commenced to knock the props out from under it. The slate came down unexpectedly and caught him under it, fracturing his leg. McNeil is a married man, thirty-five years old.

On the same date as above, an accident occurred to Thomas Roach, a miner at Coal Bluff mines, by which he received serious personal injuries. The evidence adduced at the investigation went to show he was wedging down coal: to do so, he was standing under dangerous slate, which fell upon him, almost crushing the life out of him by its weight. He was removed with great care to Mercy Hospital, Pittsburgh, where all his wants were attended to. Roach is a married man, and thirty-five years old.

March 31, an accident occurred to John Jones, a miner at the Waverly mines, by which his leg was broken. On above date he was at work in his room, when a fall of slate took place, which broke his leg above the knee.

Peter McCorey, a miner, working for Jones & Laughlin, was instantly killed in his room by falling slate, on March 20. The last time seen alive was when the mule driver, George Davidson gave him an empty wagon to load, and when Davidson returned for the wagon, he found McCorey under a large fall of slate unable to speak—this was about thirty minutes after he had last been seen alive. The wagon was standing about half loaded. Davidson raised an alarm, got assistance, and removed McCorey's dead body from under the fall. Examination clearly showed he had been standing under a large mass of slate while filling the wagon, from the fact that his shovel and pick were beside him when found. In the slate there were two or three very dangerous slips which caused it to separate and part easily from the roof, but if McCorey had used more timber, this accident never would have happened. The evidence of James Doran, the mining boss, went to show McCorey was very negligent, and was in the habit of

working under dangerous slate, as he had been cautioned about it many times. McCorey left a widow and five children, and was forty years of age.

Benjamin Mitchell aged eighteen, a miner employed at Northside, Westmoreland Coal Company, was killed by falling slate, March 22. Mitchell and William Bonner, aged nineteen, worked in a room together. They had been knocking down coal to fill a wagon, and at the investigation Bonner said Mitchel commenced to shovel coal into the wagon. There was a large piece of slate hanging over where Mitchell was at work, with only one prop to support it. Bonner thinking it dangerous, spoke to Mitchell about putting another prop up for protection, until it was convenient to take it down, but Mitchell concluded to finish loading the wagon before doing so. Just then the slate fell, putting out both their lights. Bonner called to Mitchell, but got no answer. He then called to a boy who was passing the room to bring in a light, and then saw Mitchell lying under the slate. Bonner and the boy then lifted the slate off Mitchell, and found he was breathing the last agonies of death, unable to speak, and died in a few minutes after. On examining the place, I found there were two slips in the slate, one on each side, and having no timber under it, fell for want of support. John Williams considered both Mitchell and Bonner careful men, and thought it was an accident. Eli McCormick, justice of the peace, held an inquest, the jury going into the mine to examine the place, when a verdict in accordance with the above facts was returned.

On March 24, an accident occurred to Newbold Everett. He was a miner, working at the Catsbird mine, which is operated by the Harlem Coal Company, and on above date was at work in his room, when a fall of slate took place, breaking his thigh.

Samuel Hamleton, a miner, working at the New Larimer pit, Westmoreland Coal Company, on March 12, was working in his room when he was struck by falling slate, and seriously injured. At first his wounds were not considered dangerous, but his age, seventy years, was against him, and he gradually grew worse until he died, on the 17th.

Peter Hoak, a miner at Leechburg colliery, had two ribs broken while at work, by coal falling upon him whilst bearing in under the coal. The mine is operated by David B. Ashbaugh & Co., situated in Westmoreland county. The accident occurred March 10.

Robert McQuillem, a miner at Chartiers Valley Coal Company's mine, received serious injuries by falling slate, in his room. He was loading a wagon, and had sounded the slate but a few minutes before it fell. His injuries consisted of broken ribs, and cuts about the head and face. Upon examining the place, I found that a piece of slate four feet square and a foot thick had fallen upon him, while at work loading a wagon. The slate was what is known to miners as a "Bell," being cut off on all sides by slips. When questioned about it, McQuillem said he had not the least idea it was loose, as he had sounded it a few minutes before it fell. The accident occurred April 5.

On April 8, Hugh McBride, aged seventy-two, and a miner, working for J. C. Risher & Co., at the Amity mine, had his leg broken by fall of coal in his room.

Edward Lightcop, a miner, employed at Millwood shaft, had his leg broken below the knee by fall of coal, April 10. Lightcop and his brother worked together, and the day before had made a bearing-in, leaving it stand over night. Next morning they commenced to remove the coal by wedging it down, when a part of the coal fell unexpectedly, striking him on the leg, resulting as above.

On the 12th of April, Jacob Hawk, a driver at shaft No. 1, Penn Gas Coal Company, was instantly killed by being jammed between the wagons and rib. The accident occurred at a chute known as the cross-cut, on the main heading, leading from the shaft into the workings. Thomas Saddler, another driver, was going in with his trip of empty wagons, and when he got to the cross-cut found Hawk dead in the position above indicated. The mule attached to the front end of the trip had broken loose. The first and second wagons had left the rails, the first turning down the chute and the second striking the corner of the pillar. Hawk always rode between the first and second wagons on coming out with his full trip, and this accounts for him being found in the position he was. No one saw the accident at the time, hence there was considerable difference of opinion as to what caused it. One thing, however, is quite evident, the wagons must have been running at a very high speed to produce such a wreck as here presented itself. Two of the wagons were almost a total wreck, and Hawk was jammed to the pillar so fast that they had to cut the pillar to get him out. I am of opinion he had lost control of the trip, and the fast running broke an axle of one of the wagons, thus causing the accident. Hawk was twenty years old, and a single man. Below will be found the verdict of the jury that held the inquisition:

INQUISITION.

STATE OF PENNSYLVANIA, }
County of Westmoreland, } *ss:*

An inquisition taken and indented at Irwin, in the county of Westmoreland, on the 12th day of April, A. D. 1880, before Eli McCormick, Esquire, a justice of the peace in and for said county, upon the view of the body of Jacob Hawk, who was killed in shaft No. 1 of Penn Gas Coal Company. This inquisition being held in obedience to the requirements of the act of Assembly, approved the 18th day of April, 1877, which provides for securing the health and safety of persons employed in the bituminous coal mines, &c., upon the body of Jacob Hawk aforesaid, then and there lying dead, upon the oaths of Benjamin McWilliams, Robert Thompson, J. K. McCormick, Joshua Decker, W. A. Stewart, junior, and George Sowash, junior, good and lawful men of the county aforesaid, who being duly sworn to inquire into, on the part of the Commonwealth, when, where, how, and after what manner the said Jacob Hawk came to his death, do say, upon their

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oaths, according to the testimony of the witnesses, that the aforesaid deceased came to his death in shaft No. 1 of the Penn Gas Coal Company, on the 12th day of April, 1880, by the accidental wrecking of a trip. The belief of the jury, from the evidence, is that a spring latch was held partly open by the deposit of some substance dropped from the wagon of an empty trip that had just before passed over it, thus driving the front wagon off the track; that this wagon removed the obstruction in passing, closed the latch, and kept the second wagon on the main track, and that these opposing forces, including the exertions of the mule, consummated the wreck, threw the deceased between a wagon and a solid wall of coal, and thus crushed him to death. Further, the jury deem it their duty to mention and condemn a practice referred to by the witnesses as fraught with danger, to wit: *driving too fast.* Mr. Bolan, the pit boss, says it exists, and he has striven, without entire success, to correct it. And although the witnesses unite in saying that deceased was one of the slowest, steadiest, and most careful of the drivers, still the completeness of the wreck leads the jury to believe that the practice in question must have been an important factor in this disaster.

In testimony whereof, as well the aforesaid justice as the jurors aforesaid, have to this inquisition set their hands and seal on the day and year and at the place first above mentioned.

Eli McCormick,
Justice of the Peace.
B. McWilliams.
J. K. McCormick,
W. A. Stewart,
Robert Thompson,
Joshua Decker,
George Sowash.

On April 13, an accident occurred to William Maughn, a young man aged sixteen, working with his father at Joseph Walton & Co.'s mines, at West Elizabeth, Allegheny county. His father told him to knock out a prop, which he did, and not being quick enough out of the way, was struck by the falling roof, breaking his leg below the knee.

On April 13, Robert Oliver, a miner, working with Anderson Martin in a room at Enterprise mine, O'Neil & Co., had his leg broken, and received cuts about the breast and ribs, in the following manner: The room was being driven towards the outcrop, and mining was easy, with tender roof. They had neglected to stand up sufficient timber to secure the place against danger, and a fall of roof took place which struck Oliver. When I questioned Martin about it, he said Oliver had sounded the roof a short time before it fell, and thought it was safe. This is another case of carelessness, there was no reason for letting so much roof stand without timber, as there were plenty of props at hand ready for use.

William Naregard had his collar-bone broken by fall of coal, while working at Waverly mines, April 13. He was bearing-in under the coal, when it fell upon him. Waverly mines are located in Westmoreland county.

William Maginness, a boy of fifteen, son of John Maginness, and working with his father at Abe Hays' mine, Washington county, was hurt about April 10, by fall of slate. His injuries were a broken leg, and some bruises about the body. John Maginness was slightly hurt at the same time.

At Standard mines, April 14, David Jones was burned by explosive gas, and Thomas Smith was slightly hurt. Jones and Smith had been working with Mr. Betner, putting down a bore-hole in the shaft-sinking for ventilation, for the purpose of letting the water of the shaft down into the mine. Sixty feet had been sunk from above, and thirty feet from below. Jones and Smith went into the mine to open the bore-hole, which had got stopped up, and on going up the shaft exploded the gas. Had they notified the pit-boss of their intention to go into the shaft, this accident would have been avoided.

On April 15, Henry Shoupe, a driver at Standard mines, was seriously injured. He was coming to the bottom of the slope with a train of loaded wagons, and on attempting to jump off the trip he caught his foot in the mule traces, tripped, and fell under the moving wagons, some of which passed over him. When removed from the mine, it was found he had sustained a fracture of one leg, also other injuries of a serious nature.

John McGory, a miner, working at Stockdale mine, operated by the Elizabeth Coal Company, had his leg fractured below the knee by falling slate. The accident occurred at the face of his room. He had removed all loose slate as he thought and sat down to bear in, but a small piece he thought to be solid, shortly after fell, striking him, fracturing the limb. This was clearly a case of bad judgment on his part.

On April 26, Thomas Cassidy, an old miner, received injuries by fall of slate at the Catsbird mine while at work in his room. Cassidy was loading a wagon, and at the time of the accident was in a stooping position when a piece of slate, under which he had a prop, fell on him, inflicting very serious injuries. His face was cut in a shocking manner, and his thigh was also broken. The fall struck him on the back part of the head, driving his face down into the sharp edges of the coal beneath. Cassady said the slate had been hanging several days and had no idea it was dangerous.

On April 26, an accident occurred to James Daley, a miner, at Penn shaft No. 1, by which he had a leg broken and injuries to his back by falling slate in his room.

On May the 4th an accident occurred to Philip J. Kline, a miner, aged thirty, working at Penn Gas Coal Company's mine. Kline, who worked in a room in the Coal Run mine, was loading a wagon, and had not noticed the dangerous condition of the slate under which he was at work, when it fell, crushing his arm so badly that amputation was found necessary a short time after it occurred.

Thomas Buzza was fatally injured at Walton & Co.'s upper road, West Elizabeth, by a blow from a prop he was removing in the mine. Buzza, who was at work on a pillar, had completed his day's work at mining, and having a number of props under the slate he wished to remove, commenced to knock them out in the middle of the room, instead of at one side. After he had knocked out one or two props a large mass of slate fell, knocking out another of the standing timbers, which struck Mr. Buzza a hard blow on the head, felling him to the ground. Some of his fellow-workmen went to his assistance, and it was found he had sustained serious injuries. He was removed to his home, but died the next day. An inquest was held by the coroner, and the jury returned a verdict of accidental death. Buzza was a married man, and left a widow and three children. The accident occurred May 14.

On May 14, Patrick Farrel, a miner, employed at the New Eagle mines, was fatally injured, while at work in his room. The mine is operated by Lindsey & McCutcheon, situated in Washington county. Farrel, who was an old, experienced miner, was sitting down to begin undercutting, when a small piece of slate fell from the roof, striking him on the back, breaking some of his ribs and injuring his spine. He lingered, in great pain, until the 23d, when death relieved his sufferings. This was, no doubt, an accident. Mr. Farrel had the reputation of a very careful miner. He left a widow, but no children.

Alexander White, a miner, employed at the mines of J. B. Correy & Co., Braddock's Field, was killed by fall of slate, on May 17. White left a widow and six children, and was fifty years old, being an old miner, and was at work with David Bradford when he came to his death.

Alfred Wethers, a young man of nineteen, received serious injuries at Walton & Co.'s upper mines, West Elizabeth, Allegheny county, from a fall of slate in his room. The accident took place May 21, and when found by Thomas Berrey, he was sitting beside a mass of slate that had just fallen, with his head and face fearfully cut and mangled, and bleeding very much. When questioned, he could neither tell how it happened or how he got from under such a mass of slate without assistance, yet he could reason and talk about any other thing, but how he came to get hurt he could give no account.

Peter Smith, a miner, working at Pine Run mines, was seriously injured on the 24th of May. He was working in a pillar, had finished his day's work of digging, and was removing the props when a fall of roof occurred, which knocked out one of the props, striking him on the head, knocking him down and rendering him insensible. Samuel Hawk, happening to pass the place, stepped in and found Smith breathing hard, and bleeding very much from cuts in the head. He was removed to his home, and the best medical assistance procured, when it was found his skull had been fractured in a very dangerous manner. For sometime his life was dispaired of, but with careful nursing and the best medical attention, Smith recovered from his injuries.

Henry Wall, aged fifty years, and a widower, employed at the Old Eagle mine, was killed by falling slate in his room, June 4. A son of eighteen was with him when the casualty occurred. The son's account of the affair was that he was shoveling coal into a wagon while deceased was at work on the coal face, and standing under the slate. Young Wall noticed the dangerous nature of the roof, and spoke to his father about putting up more timber, but the old man paid no attention to what was said, and while in that position the slate fell upon him, killing him on the spot. This fall was twelve feet long, the slate being solid, and fell for want of support. As there was plenty of timber at hand ready for use, no blame could be attached to anyone.

David Sarfiet had his leg broken on June 5, while at work in his room. He was a miner at Monastery mines, operated by the Edgar Thompson Steel Company, situated in Westmoreland county. The injury was caused by slate falling on him in his room, number 19, main heading, and the leg was broken below the knee.

On June 8, Edward Daley, a miner, working for the Pennsylvania Gas Coal Company, at the number four mines, got his leg broken by a fall of slate. Daley was filling a wagon when the fall occurred. I found, upon examination, the slate was full of slips and faulty, and the roof very treacherous, being very hard to guard against.

James Fairchild, mining boss at Fayette mines, was hurt June 19, by fall of roof. One of the rooms had fallen in and shut in a wagon, and Mr. Fairchild went to assist in getting it out, and, while thus engaged, some more of the roof fell, striking him on the leg, dislocating the ankle. The injuries were not very serious.

John Russell, a young miner, aged eighteen, employed at the Globe mines, near Broadford, Fayette county, was killed instantly on June 19, by fall of roof coal and slate. Young Russell usually worked with his father, but of late had been working alone. About noon, Russell went to the mining boss, Thomas Hepplewhite, and told him he had finished his place he had been working in last, and asked Hepplewhite to give him another one to enable him to complete his day's work. Hepplewhite complied with his request, and then went out to dinner. Russell went to work in the place pointed out by the pit boss, and a short time after, when he was about finishing loading the first wagon, a large mass of roof coal and slate fell, completely covering the young man, killing him instantly. Upon receiving notice I visited the place of accident to make an investigation, and found Russell had been working in a break-through at the time of the accident. There was a wagon standing nearly full of coal and a part of the fall upon it. The fall was about ten feet wide and twelve feet long, and the roof coal and slate that fell was four feet thick. There had been a wide space unsupported by timber, and one of the props had been removed to admit the wagon. The room being near the outcrop, the coal and roof was of a tender yielding nature, and the fall occurred for want of timber to support the roof. There was plenty of timber at hand, but from some cause its use

had been neglected. At the investigation, Frank Colwell said James Wayland had been working in the place two days before Russell went there to work, and that he and Haustan Knight were in the room and saw the fall take place. He was waiting with his mule to take the wagon out as soon as Russell should have it loaded. A moment or so before the fall took place he cast his eyes about the place and saw the dangerous condition of the roof, and called to Russell to come out, but he did not move quick enough, and the fall caught him, covering him up. I am fully satisfied, in my own mind, if the timber furnished had been used, the death of Russell would never have occurred; and further, it seems very strange indeed that these three men should all be in the room together and not notice the dangerous condition of the roof until it was too late.

On July 2, John Curry, a miner, employed at Morewood mines, was burned by explosive gas. The mining boss had employed one of the miners to examine all the working places in the morning to see that they were safe, but on the morning of above date, through some misunderstanding Mr. Curry's place had not come under examination, and he went into his room expecting to find all things right, and exploded the gas with a naked light. This occurred through the negligence of the mining boss not attending to his duty, for which I gave him a serious reprimand.

Van Laughlin, a miner, working for the New York and Cleveland Gas Coal Company, at Plum Creek mines, had his leg broken below the knee, on July 3, by falling slate in his working place.

On July 5, an accident happened to Patrick Burns. He was leaving off work, and came to the parting where the trip of loaded cars were standing, got on the wagons, and was riding out of the mine standing between two of the wagons, and on coming down grade, one of the hitchings came out which caused the wagons to separate, and Burns lost his balance, fell in front of the wagons, one of which passed over him resulting in serious injuries. This accident occurred at the Grant mines, and Burns knew he was violating a well known rule of the colliery, in riding on the trip of loaded wagons.

An accident occurred to John Cochran, mine boss at Hockins' mine, operated by the Myersdale Coal Company. The mine is situated near Myersdale, Somerset county, and the seam is worked by incline plane. Cochran who was driving a horse, was coming out of the mine with a trip of loaded wagons. When about forty feet from the mouth of the pit, was struck by a bolt of lightning, and instantly killed, and the horse he was driving, knocked down in the heading. Archibald King, and Thomas McElvay were at the pit mouth, and hastened to his assistance, but found him dead. At the time the accident occurred, a heavy thunder storm was raging outside the mine, and no doubt the bright iron rails acted as a conductor, and carried the electricity into the mine, and caused the accident. Mr. Cochran was a single man, twenty-one years of age.

On July 26, William Lowe, single man, and Benjamin Hickman, thirty-

five, married, were burned by explosive gas at the Standard mine. These two men were engaged with others in sinking an air shaft at the above mine, and were going down at two o'clock in the afternoon to commence their shift, having lights on their heads. When on getting a short distance from the bottom of the shaft, the gas exploded, burning both of them, Lowe rather seriously. I was visiting the mines at the time, and was on top of the shaft when the other shift of men came out. They had been using naked lights, and no one thought of danger from explosive gas.

William Chester, an outside laborer, employed at the Buffalo mines, met with an accident on August 6. He was engaged under the tipple in helping to load the railroad cars, and at the time the accident took place was making a coupling, when he missed his foot-hold and fell between the cars, one leg being very seriously crushed by the wheels. It was found necessary to amputate the limb below the knee. Chester is eighteen years of age, and single.

On August 10, James Breen, employed as road-man at Enterprise mine, operated by Hartley & Marshall, had his leg broken in the mine by being caught by wagons.

Robert Morris, a miner, working at Sterling Coke Works, was seriously injured by wagons, August 10. Morris was standing near his room mouth when a driver came down the heading with a trip of wagons, and a wagon near where Morris was standing was struck and knocked off the track, crushing him against the pillar. His injuries consisted of broken ribs and injuries to breast and back. This accident was caused by his own carelessness in not standing out of the way of the trip coming down grade.

James McClinchie, a miner, working at Enterprise mine, Hartley & Marshall, operators, was killed instantly by falling slate, August 17. McClinchie worked in room No. 7, Walton's heading, and was found under the slate by the driver, who went into the room for the wagon he had given McClinchie a short time before to load. From the position he was found in, I supposed he had been knocking out props with a view of letting the slate fall, and had been caught unawares. When I examined the place where the accident occurred, I found a large mass of slate had fallen at the face of the room, and several props lying under it. And also on examining the roof there was a very dangerous slip on the gob side, which had no doubt been the cause of the sudden fall taking place. McClinchie was forty years old, and a single man.

On August 27, George Bear, a young man of eighteen years of age, and a miner employed at the Birmingham Coal Company's mines, was fatally injured by wagons. Bear had quit work about noon, and went out of the mine; and wishing to get a ride through the tunnel, tried to jump on a moving train of wagons, but missed his foot-hold, fell between the wagons, and was crushed to death before the engine could be stopped. The company have notices up at the pit-mouth, forbidding any one to ride on the wagons under any circumstances, but it would appear almost impossible to stop such recklessness.

On August 28, John Conley, a miner, working for Frank Armstrong, at the Summerhill mines, was fatally injured while at work in his room. On investigating the matter, I found Conley, who was an old miner, had been employed only a few days, and had been given a place well timbered, and which was considered just as safe as any place in the mine. He had taken a wagon into the room to load, but before he commenced to fill it removed some of the timber from under the slate, which helped to support it. The result was a heavy fall occurred, and Conley was caught under the fall, which crushed him in a shocking manner. He was removed to his home at Steubenville, Ohio, where he died a few hours later. Conley was fifty years old, and left a widow and seven children.

Robert Stewart, a driver at Enterprise Coke Works, was seriously hurt on August 28. He was coming out of the mine with a trip of wagons. When near the pit-mouth the mule became restive and finally ran away, and Stewart was caught against the pillar, and his arm was broken. He also received bruises about the body.

At Buffalo mines, August 31, William Rees, and his brother David, were driving heading, when a large mass of slate fell upon William from the side of the heading, fracturing his thigh.

Edward Blain, a miner at Amity mines, operated by J. C. Risher & Co., Allegheny county, had his leg fractured by falling slate, September 10.

John Morgan, a boy of seventeen, who worked with his father at Allequippa mines, situated in Allegheny county, got his leg fractured and other injuries, September 12. Young Morgan took a mule to haul a wagon out of a room, on coming out tripped and fell in front of the wagon, and was run over, which resulted in the above injuries. The boy was not doing his own work, and had no business whatever with the mule.

Robert White, aged forty-six years, had his leg broken at Walton & Co.'s upper road, by wagons, on September 29.

On September 30, Timothy Grim, a miner, aged sixty-six years, employed at Youghiogheny mines, was fatally injured by falling slate. Mr. Grim and his son, a married man, were working together in a room, the son was loading a wagon, the old man working next the rib side, where a piece of slate fell from the side, striking him upon the head, inflicting injuries from which he died a short time after. When I examined the place I found the slate at the face of the room of uncommon thickness, full of slips, and very dangerous to work under.

On October 4, Thomas Lawrence, a miner, working for William H. Brown's heirs, at McClosky road, was killed outside the mine. Mr. Lawrence was going home from work, and was crossing the bridge which spans the township road, and which is also used for conveying the coal wagons across the ravine from one pit mouth to another. The road is a double track, Lawrence walking on the empty track just at the time a driver with a trip of loaded wagons came out of the pit mouth, and for some reason the wagons took the empty track instead of the loaded one, and before the

driver had time to stop the wagons Mr. Lawrence was struck by the wagons and knocked off the bridge, and fell about eighteen feet to the ground below. A pick he carried under his arm entered his head near the eye, and his neck and back were broken. Death, under such circumstances, must have been instantaneous. Coroner Hope was notified, and an inquest was held, when the jury returned a verdict of death by accident. Lawrence was sixty-four years old, and left a widow, but no children.

H. Pendlebury, a miner at Tremont mines, while at work in his room, was hurt by fall of coal, October 16. A fall of coal took place, and his hand was very seriously crushed. For a time it was thought the hand would have to be amputated, but Mr. Clark informs me that he is improving.

October 14, Joseph Bradley, a miner, employed at Waverly mines, had his foot broken by falling slate in his room.

On October 21, Christopher Beamer, a single man, aged twenty-seven years, was killed by fall of roof slate. This accident occurred at Street's Run mines, operated by I. D. Risher, situated in Allegheny county. I was notified of the death of Beamer, and, upon investigation, found that on above date Beamer was working in room 133, No. 1 heading. John Riley, who worked next room, heard a fall in Beamer's place, and thinking there was something wrong, ran to Beamer's assistance, and found him lying under a large mass of horseback, unable to speak. Riley got assistance as soon as possible and removed him. He lived but a few minutes, and was unable to tell how it happened. Upon examining the place, I found there was what is known to miners as a horseback in the roof. The slate was of unusual thickness, and full of dangerous slips. Those slips in the roof were the cause of the sudden fall, by which Beamer lost his life. The room was well timbered, and to all appearance as safe as any in the mine, except at the face where the fall occurred. From the appearance of things, I think Beamer was standing under the slate drilling a hole for a blast when the slate came down upon him.

William Magher, a miner, employed at Laurel Hill mines, operated by W. P. Rend & Co., was killed by fall of roof slate in his room on November 3. The last time seen alive was at 11 o'clock, A. M., and at 2 o'clock, P. M., was found by the driver, who went to his room for a wagon, lying dead under the fall of slate. From the appearance of things when I investigated the matter, Magher, at the time of his death, was standing up a prop under the slate when it fell upon him. This is evident from the fact that two props, a pick, and an ax were found close beside him under the fall. There was a heavy roll and horse-back and the roof was full of dangerous slips. Magher was aware of the dangerous nature of the roof, and was no doubt trying to guard against it and protect himself at the time he was killed, by setting up timber. Deceased was a native of Ohio, a single man, and twenty-six years old. Mr. McDonald, Esq., justice of the peace, empaneled a jury and held an inquest when a verdict of accidental death was returned by the jury.

At the Salisbury mines, Somerset county, November 4, Bud Backer, a miner, had his shoulder broken by falling slate while at work in his room.

On the 8th of November, Abram Torrance, a miner, employed at Cincinnati mine, situated in Washington county, and operated by J. S. Neel, was fatally injured while at work in his room by falling coal and slate. I was notified by letter of the accident, and upon investigation found Torrance had been working in room No. 10, in No. 2 heading. The room had been driven down about one hundred and fifty feet from the heading, twenty-seven feet wide, with road in the middle of the room, slate being taken down all across. Torrance had been at work on a butt-bearing in and a part of this butt coal with the slate above fell upon him inflicting serious injuries. He was found in this position by Hugh McClane who happened to pass the room and heard his cries for help. When he was removed it was found a leg had been broken and other injuries sustained. Torrance was taken to Mercy Hospital, Pittsburgh, but he died on the 11th. I found the roof where the accident occurred very good. There was considerable squeeze on the coal face which rendered the coal and slate soft and of a easy yielding nature. This fact I suppose had deceived Torrance who had not much experience in mining the Pittsburgh seam. He was a native of Scotland, had been but a short time in this country, and left a widow and four children in his native country to mourn his loss.

Edward Hodgins, a miner, employed at Allequippa mine, Bailey & Wilson operators, sustained a fracture of one leg at the ankle, while at work in his working place, November 11. The injury was caused by a large mass of slate falling on him.

On November 16, John Caughlin received serious injuries while at work at Banner Coal Works, operated by Messrs. Gamble & Risher. Caughlin was at work in a room, and had neglected to set up props to keep up the slate, which fell upon him, breaking his leg and some of his ribs, also inflicting other injuries of a serious nature.

Joseph Barr, a miner at Millwood Shaft, while at work driving a heading, November 19, had his leg fractured below the knee, by falling slate. He was knocking down some slate from the roof, and in getting out of the way his foot caught a rail, causing him to trip and fall. Before he could recover himself, the slate struck him with above results.

John Hague, aged fourteen years, a trapper boy employed at Buffalo mines, was very seriously hurt in the mine, November 19. The boy had followed the driver into one of the headings, where a mule was standing with a wagon attached, and while the driver was attending some other business, the mule became frightened and ran away. The boy attempted to stop it but did not succeed, and was knocked down under the wheels, the wagon passing over him. His injuries were one arm taken off, a scalp wound, and bad bruise on the leg. For some time after the accident, his life was despaired of, but under good treatment his life has been saved.

John Wilthrowe, a miner, employed at Cliff mines, was fatally injured, November 24. At the time of the accident, he was undermining the coal to a clay vein, and thinking it safe, had not taken the precaution to put in sprags to prevent the coal from falling. When considerable undermining had been done, the coal fell upon him, crushing him so badly that he died two hours after. He was an old experienced miner, had worked for the company a number of years, aged fifty-three years. and unmarried.

Lawrence Driscoll, a miner, employed at Sandy Creek mines, was fatally injured on December 7, by wagons. A driver hauled his loaded wagon to the mouth of Driscoll's room and left it there, intending to stop and put it on the hind end of the trip when he should return to go outside. When the driver returned, Driscoll, William Moxon, and another man were standing at the room end. When they saw the wagons coming down the heading, all began to look for some safe place to get out of the way. Driscoll taking a position on the right hand side of the heading going out, and near the wagon first mentioned. This wagon, it would appear, had been pulled a few inches too far into the heading. This, however, had not been noticed by anyone, and when the trip of wagons came down, they struck and knocked the first-mentioned wagon off the track. Unfortunately for Mr. Driscoll he had stood too near the wagon, and was caught between it and the solid coal, and crushed so badly that death resulted in two days after. He was well respected by his fellow workmen, and left a widow and five children. He was forty-seven years old.

Thomas Williams, a miner, employed at Osceola mines, met with an accident in the mine, which resulted in two ribs being broken and other injuries of a serious character, by falling slate. The injuries occurred December 10, and he being an old man, aged sixty years, it was for sometime feared they might have fatal results, but the operators inform me in their report he is getting better.

Smith Martin, a young colored boy, was fatally injured at Alpsville mine December 13, by fall of slate, in the place in which he was working. William Cherry and the boy Martin were working together in room No. 10, in No. 12 heading, and at the time he received his injuries was knocking down some coal to finish loading a wagon. A few minutes before he had been engaged shoveling coal into the wagon, whilst Cherry was knocking the coal. But all of a sudden Martin threw down the shovel and said he would do that, meaning he would knock the coal. He got hold of the pick and commenced to do so, but had struck but a few blows when the slate fell upon him, causing injuries from which he died two hours later. This boy was the only support of a widowed mother and a large family of children. A few years ago his father was killed in the mines in the same manner.

John Watkins, a miner, seventy-two years old, and for many years employed at Jones & Laughlin's mines, South Side, Pittsburgh, was fatally in-

jured December 18. Mr. Watkins was going to take a ride on the locomotive engine through the tunnel, and in attempting to get on the engine was crushed between the wagons and the engine, receiving injuries from which he died the same day. The mines are a long distance in, and Mr. Watkins being a old man as well as an old employé had been allowed to ride in the cab with the engineer, and on above date he was about to take his accustomed ride. All being ready, Watkins was attempting to get on the engine, when just at that moment the engineer put on steam which caused the engine to make a back motion, and Mr. Watkins was crushed between the first wagon and the engine. The engineer had his back towards him and could not possibly see the position of Watkins until it was too late. His breast and ribs were broken and crushed in a shocking manner. No one was more sorry for the accident than Charles Wilmot, the engineer, who had during all the years he had been employed treated Mr. Watkins with kindness in letting him ride to and from his work.

James Watson, aged twenty-two years, a miner, employed at Summer Hill mines, received serious injuries on December 27, by falling slate, while at work in his room. Watson and his mate, William Fell, were working together, and were loading a wagon, Fell being at the front end of the wagon, Watson at the hind end. The story, as told by Fell, when I went to investigate the matter, was that the wagon was nearly loaded, and Watson stepped to the face to get a lump of coal to finish it with, when a large mass of slate, under which both had been working, fell upon Watson, breaking his leg below the knee. He was immediately removed from the mine, and the best medical assistance procured, and is now doing well. Fell said they knew the place was unsafe, and complained to me of want of timber, saying they had asked the mule-driver to bring in some timber, who said their was none down the hill. John Duncan, the mining boss, when confronted with this statement of Fells, said the men had never asked him, and was not aware they were short of timber. The question arose in my mind whether Duncan had violated the fifth section of the law, in not seeing the men were properly supplied with timber.

In making the above statement of casualties, I have endeavored to give the bare facts of each case, as presented at the investigations. I have spent a great deal of time and labor to enable me to arrive at the facts of each casualty. While this list embraces the most serious accidents, yet there are a great many not mentioned in this list that has a similar history. How many narrow escapes from death there are in the untold list is very hard to say, but I have no doubt there are many. Some of the above deaths were the result of accidents occurring from causes over which the parties had no control, and from causes which were impossible for them to know or understand. Such accidents will always take place as long as coal is mined, still there are a great many that can and ought to be prevented. To a mind experienced in mining, there seems a great amount of neglect and carelessness observable in many of the so-called accidents, such

as neglecting to take down dangerous slate at the proper time, or to stand up sufficient timber to support the roof of the mine in the working-places, riding between loaded wagons coming out of the mines, attempting to jump on moving trains, and standing in the way of moving wagons. These are the principal causes of accidents in this district, and which miners should guard against.

When we take into consideration the dangerous nature of the work performed, and the conditions under which it is done, it is no wonder men get hurt and killed. In order to support his wife and family, the miner must get out as much coal as possible. His whole mind being directed to this object, he neglects to remove dangerous slate hanging in a threatening manner over his head, or to stand up a prop at the proper time and place. This neglect or omission may be fatal to him. Sometimes the danger is known and talked of, just as any other thing would be, but the parties think some other work needs attention first, goes on with the other work, and the casualty takes place. Such cases show a lack of judgment, and want of care and attention the subject ought to have. The miner's chamber is his working-place, and where a great part of his time is spent. He is the sole judge of its condition as to safety or danger, and in some measure he makes it either one or the other. It may be safe one hour, and very dangerous the next. This may seem strange, but it is not a subject of wonder when we remember that every blow from the miner's pick, every swing of the sledge-hammer, changes the condition of things around him, and nature assisting in the work. There may be a dangerous slip two or three feet ahead, of whose existence he knows nothing.

This may be a fatal spot, and for aught he knows, may receive a death blow in the twinkling of an eye, and when he least expects it. Such causes I believe have produced many of the casualties reported here. Still I cannot leave this subject without calling the attention of the miners and mining bosses to the necessity of greater caution in guarding against accidents of all kinds.

During 1880, there were twelve persons burned by explosive gas, fortunately none were injured fatally from that cause. Seven of these were burned in the Catsburg mine, situated in Washington county, and was the result of their own carelessness—many of them did not work at the mine, and had no business there. Two of the other five got burned through disobeying orders, in going into the place without first asking if all was right. One was burned through the neglect of the pit boss, in not seeing his working place was clear of gas before he allowed him to enter. The other two were burned in a shaft at Mt. Pleasant, while sinking operations were going on, and occurred from causes not easily forseen, and therefore was the result of accident. All of these explosions were of a slight nature, and from small accumulations of gas.

TABLE I.—SHOWING LOCATION OF COLLIERIES IN THE FIRST BITUMINOUS MINE DISTRICT.

NAME OF COLLIERY.	Name of Company.	Location—County.	Name of Superintendent.	Post Office Address of Company.
Beech Cliff,	Imperial Coal Company,	Allegheny,	B. B. Brown,	Imperial Post Office.
Montours,	do. do.	do.	do.	do. do.
Phœnix,	Phœnix Gas Coal Company,	do.	Robert Stewart,	Second Avenue, Pittsburgh.
Bell's Mine, No. 1,	Mansfield Coal and Coke Company,	do.	Robert Bell,	382 Penn Avenue, Pittsburgh.
Bell's Mine, No. 2,	do. do.	do.	do.	do. do.
Grant Mines,	Grant Coal Company,	do.	George Hosack,	Mansfield Valley.
Camp Hill,	D. Steen & Sons,	do.	Thomas D. Steen,	Fourth and Try streets, Pittsburgh.
Fort Pitt,	Fort Pitt Coal Company,	do.	J. E. McCrickart,	337 Liberty street, Pittsburgh.
Pittsburgh Union,	Joseph McConnell,	do.	Joseph McConnell,	Walker's Mill.
Jackson Mines,	James Ewing,	do.	James Ewing,	do.
Cherry Mines,	Morris McCue,	do.	Morris McCue,	Fourth and Try streets, Pittsburgh.
Oak Ridge,	Oak Ridge Coal Company,	do.	George Schluderberg,	do. do.
National Mines,	National Coal Company,	do.	Edward Fisher,	do. do.
Willow Grove,	T. B. Robbins & Co.,	do.	Charles McDonald,	Midway, Washington county.
Laurel Hill,	W. P. Rend & Co.,	do.	Hugh Knox,	413 Liberty street, Pittsburgh.
Glendale,	S. B. Gregg & Bro.,	do.	S. B. Gregg,	Mansfield Valley.
Nixon Mines,	Chartiers Valley Coal Company,	do.	David Boden,	do.
Black Diamond,	William Bains & Bro.,	do.		Woodville.
Summer Hill,	Frank Armstrong,	do.	Frank Armstrong,	Fourth and Try streets, Pittsburgh.
Bower Hill,	A. J. Schultz,	do.	A. J. Schultz,	Woodville.
Clark's Slope,	James Clarke,	do.	William Clarke,	Bridgeville.
Wood Mine,	Wettengel & Gormley,	do.		Thirty-sixth Ward, Pittsburgh.
Nimick,	Thomas Fox,	do.		do. do.
Chess Pit,	Gray & Bell,	do.	Martin Gray,	Banksville.
Eclipse,	John Carlin & Co.,	do.		Thirty-sixth Ward, Pittsburgh.
Coal Ridge,	Gray & Bell,	do.	Martin Gray,	Banksville.
Venture,	do.	do.	do.	do.
Enterprise,	Hartley & Marshall,	do.	Roger Hartley,	do.
Fair Haven,	Pittsburgh and Castle Shannon Coal Company,	do.	James M. Bailey,	South Side, Pittsburgh.
Keelings, No. 1,	Birmingham Coal Company,	do.	Joseph Keeling,	do. do.
Keelings, No. 2,	do. do.	do.	do.	do. do.
American Coal Works,	Jones & Laughlin,	do.	James Doran,	Second Avenue, Pittsburgh.
Heberman,	Joseph Walton & Co.,	do.	Morris Cap,	Water street, Pittsburgh.
Beck's Run,	H. B. Hays & Bro.,	do.	John Trantemann,	First avenue, Pittsburgh.
Six Mile Ferry, No. 1,	do. do.	do.	John Watson,	do. do.
Six Mile Ferry, No. 2,	do. do.	do.	do.	do. do.
Munhall Coal Works,	do. Numhall,	do.		Homestead.
Green Springs,	Thomas Fawcett,	do.	Thomas Carrick,	Water street, Pittsburgh.
William Neel's,	William Neel's heirs,	do.		McKeesport.
William Stone,	William Stone's heirs,	do.	G. W. Stone,	do.
Amity,	J. C. Risher & Co.,	do.	J. C. Risher,	160 First avenue, Pittsburgh.
Camden,	George Lysle & Sons,	do.		69 Water street, Pittsburgh.
Albequippa,	Bailey & Wilson,	do.		Dravosburg.
Rock Run,	W. J. Snodgrass,	do.		do.
Pine Run, No. 1,	James Lynn & Co.,	do.	John O'Neil,	Water street, Pittsburgh.

TABLE 1.—FIRST BITUMINOUS MINE DISTRICT—*Continued.*

NAME OF COLLIERY.	Name of Company.	Location—County.	Name of Superintendent.	Post Office Address of Company.
Jefferson Mines,	S. C. Clark,	Allegheny,		Coal Valley Post Office.
Enterprise,	O'Neil & Co.,	do.		Elizabeth.
Lower Road,	Walton & Co.,	do.	John Rike,	Water street, Pittsburgh.
Upper Road,	do.	do.	do.	do.
Fulton Colliery,	George Jones' heirs,	do.	Thomas Jones,	West Elizabeth.
Street's Run,	I. D. Risher,	do.		Hope Church Post Office.
McClosky Road,	W. H. Brown's heirs,	do.	William S. Brown,	113 Water street, Pittsburgh.
Keystone Mine,	do. do.	do.	do.	do. do.
Osceola,	Osceola Coal Company,	do.	Robert Jack,	Greenock Post Office.
Alpsville Mine,	Hockett & Rafferty,	do.	W. S. Mowery,	Duncan Post Office.
Duncan's,	Duncan Brothers,	do.	William Duncan,	do.
Cornell & Werling's,	W. H. Brown's heirs,	do.	Robert Cornell,	113 Water street, Pittsburgh.
Youghiogheny,	James O'Neil,	do.	James O'Neil,	Boston Post Office.
Penny Mines,	Lynch & Robinson,	do.	David Lynch,	Water street, Pittsburgh.
Robins & Jenkin's,	William Robbins,	do.	William Smith,	do.
Belleview,	Henry & Gumbert's heirs,	do.	Peter Lamp,	Elizabeth.
Lovedale,	Wood, Schrader & Co.,	do.		do.
Horner & Roberts' mine,	Horner & Roberts,	do.	Samuel Roberts,	do.
Wenone,	Skellon Brothers,	do.	James Skellon,	do.
Old Eagle,	W. H. Brown's heirs,	do.	John Perrie,	113 Water street, Pittsburgh.
Milesville,	Joseph Jenkins,	do.	Joseph Jenkins,	Sunny Side Post Office.
Rea Mine,	John Crumble & Co.,	do.	John Crumbie,	do.
Sandy Creek, No. 1,	New York and Cleveland,	do.	J. W. Doak,	Fifth avenue, Pittsburgh.
Sandy Creek, No. 2,	Gas Coal Company,	do.	do.	do. do.
Plum Creek, No. 1,	do. do.	do.	do.	do. do.
Plum Creek, No. 2,*	do. do.	do.	do.	do. do.
M. Graver,	M. Gravner & Co., (Limited,)	do.	William Fisher,	Duquesne Way, Pittsburgh,
Weinman,	Jacob Weinman,	do.	Jacob Weinman,	Wilkinsburg.
Hampton Mines,	John McIntosh,	do.	Oliver Duff,	513 Liberty street, Pittsburgh.
Duquesne,*	New York and Cleveland,	do.	J. W. Doak,	Fifth avenue, Pittsburgh.
Oak Hill, No. 3,	Gas Coal Company,	do.	John McIntosh,	do. do.
Oak Hill, No. 4,	do. do.	do.	do.	do. do.
Spring Hill,	Westmoreland Coal Company,	do,	F. Z. Schellenberg,	Irwin, Westmoreland county.
Coreys,	J. B. Corey & Co.,	do.		Braddock's.
Pine Run, No. 2,	James Lynn & Co.,	do.	John O'Neil,	Water street, Pittsburgh.
Brier Hill,	J. D. Sanders,	Washington,		McDonald station.
Prim Rose,	Robbin's Block Coal Company,	do.	T. B. Robbins,	Midway.
Walnut Hill,	T. B. Robbins & Co.,	do.	do.	do.
Midway Block Coal Company,	G. W. Crawford,	do.	R. M. Ulp,	do.
Keystone mines,	Keystone Coal Company,	do.	J. M. Bailey,	Hamlin's Station.
Cooks',	John Cook,	do.	John Cook,	Cannonsburg.
Locust Grove,	W. S. White,	do.	W. S. White,	do.
Allison,	J. Allison,	do.	J. Allison,	Washington.
Enterprise mine,	V. Harding,	do.		do.
Union Valley,	Jacob Legler,	do.		Finleyville.
Shireoaks,	Blackburn & Mort,	do.	James Mort,	Coal Bluff.

Banner Works,	Gamble & Risher,	do.	. . . . .	do.
Cliff mine,	Scully & Co.,	do.	. . . . .	do.
Coal Bluff,	Patterson & Co.,	do.	Robert Greenhalgh,	do.
Cincinnati,	J. S. Neel,	do.	George Lockert,	do.
Buffalo mine,	Chicago Gas Coal Company,	do.	Miles Gibson,	Monongahela City.
Huston's,	John B. Huston,	do.	W. J. Morgan,	415 Liberty street, Pittsburgh.
Black Hills,	I. B. Miller & Co.,	do.	. . . . .	Courtney Post Office.
Courtney mine,	Berry, Cook & Co.,	do.	I. B. Miller,	Monongahela City.
Mingo,*	. . . . .	do.	. . . . .	Courtney Post Office.
New Eagle,	Lindsey & McCutcheon,	do.		
Catsburg,	Harlem Coal Company,	do.	Thomas S. Hutchinson,	Monongahela City.
Warnes',	Hiram Warne,	do.	Louis Stalb,	do.
Black Diamond,	Harlem Coal Company,	do.		do.
Abe Hays,	Hays & Hutchinson,	do.	Louis Stalb,	do.
Buzzard Roost,	Harlem Coal Company,	do.	Thomas S. Hutchinson,	do.
Stockdale,	Elizabeth Coal Company,	do.	Louis Stalb,	do.
Clipper,	Edward Forlong,	do.	William Jones,	Webster, Westmoreland county.
American Works,	F. H. Corsen,	do.	. . . . .	Allenport.
Woods' Run,	Thomas J. Woods,	do.	. . . . .	Woods Run.
Champion Works,	Morgan & Dixon,	do.	. . . . .	Do.
Caledonia,	Richard Wellington,	do.	. . . . .	Pike Run.
Smith mine,	J. S. Neel,	do.	. . . . .	Woods Run.
Dexter,	Crowthers, Musgrave & Co.,	do.	. . . . .	Pike Run.
Globe,	do. do.	do.	Jonah Crowthers,	California.
Neel's mine,	J. S. Neel,	do.	do.	do.
Knob Colliery,	Knob Coal Company,	do.	Presly Forsythe,	Smithfield street, Pittsburgh.
Anderson's mines,	David M. Anderson,	do.	. . . . .	West Brownsville.
New Larimer,	Westmoreland Coal Company,	do.	. . . . .	Finleyville.
Old Larimer,*	do. do.	Westmoreland,	F. Z. Schellenberg,	Irwin Station.
South Side,	do. do.	do.	do.	do.
North Side,	do. do.	do.	do.	do.
Shafton,	do. do.	do.	do.	do.
Westmoreland Shaft,	do. do.	do.	do.	do.
Foster Slope,	do. do.	do.	do.	do.
Shaft No. 1,	Penn Gas Coal Company,	do.	do.	do.
Shaft No. 2,	do. do.	do.	William Wilson,	do.
Shaft No. 3,*	do. do.	do.	do.	do.
Mine No. 3,*	do. do.	do.	do.	do.
Mine No. 4,	do. do.	do.	do.	do.
Coal Run,	do. do.	do.	do.	do.
Penn Slope,	do. do.	do.	do.	do.
Greensburg mine,	Coulter & Huff,	do.	do.	do.
Monastery,	Edgar Thompson Steel Company,	do.	A. W. Jones,	Greensburg.
Watt's Slope,*	M. Saxman & Co.,	do.	A. J. Crossland,	Latrobe.
Saxman,	M. Saxman & Co.,	do.	. . . . .	do.
Loyalhanna,	Loyalhanna Coal and Coke Company,	do.	. . . . .	do.
Millwood Shaft,	Millwood Coal Company,	do.	Morris Ramsey,	do.
Isabella Coke Works,	Isabella Furnace Company,	do.	Albert Ford,	Millwood Station.
Saltsburg mines,	Saltsburg Coal Company,	do.	W. C. Crest,	Cokeville.
Mill Bank,	Laufman & Co.,	do.	W. B. Robinson,	Saltsburg, Indiana county.
Leechburg Colliery,	David B. Ashbaugh & Co.,	do.	John Osborn,	Apollo, Armstrong county.
South West mines,	South West Coal Company,	do.	David B. Ashbaugh,	Leechburg, Armstrong county.
. . . . .	Dillinger, Tarr & Co,	do.	J. W. Stoner,	Tarr's Station.
		do.	Peter Tarr,	Tarr's Station.

TABLE 1.—FIRST BITUMINOUS MINE DISTRICT—*Continued.*

NAME OF COLLIERY.	Name of Company.	Location—County.	Name of Superintendent.	Post Office Address.
Americus Coke Works,	George W. Stoner & Co.,	Westmoreland,	J. F. Stoner,	Stonerville Post Office.
Union Coke Works,	Hurst, Stoner & Co.,	do.	Braden Hurst,	Stonerville Post Office.
Enterprise Coke Works,	Dillinger & Rafferty,	do.	Benjamin Braznell,	Scottdale.
Rising Sun,	C. P. Markle & Sons,	do.	B. McClain,	Mount Pleasant.
Bessemer Coke Works,	C. P. Markle & Sons,	do.	do.	Mount Pleasant.
Alice Mine,	J. M. Schoonmaker,	do.		113 Water street, Pittsburgh.
A Shaft, Morewood,	H. C. Frick & Co.,	do.	J. A. Striekler,	104 Fifth avenue, Pittsburgh.
B Shaft, Morewood,	H. C. Frick & Co.,	do.	do.	104 Fifth avenue, Pittsburgh.
Standard Coke works,	A. A. Hutchinson & Bro.,	do.	Charles Cunningham,	94 Fifth avenue, Pittsburgh.
Boyle Shaft,	Boyle & Rafferty,	do.	B. Braznell,	Smithfield street, Pittsburgh.
Boyle Slope,	Boyle & Rafferty,	do.	do.	Smithfield street, Pittsburgh.
Mullen's Slope,	W. D. Mullen,	do.	John Bell,	Mount Pleasant.
Buckeye mine,	John M. Coehran's Heirs,	do.		Stauffer's Station.
West Overton mine,	A. C. Overholt & Co.,	do.	A. C. Overholt,	West Overton.
Eureka,	Fox, Kiffer & Co.,	do.	W. C. Kiffer,	Scottdale.
Waverly mines,	Waverly Coal and Coke Company,	do.	Thomas Neil,	Smithton.
West Newton mines,*	West Newton Coal Company,	do.	W. H. Watt,	West Newton.
White Heath mines,	Robert Latimore,	do.	Robert Latimore,	do.
Markle's,	C. P. Markle & Sons,	do.		do.
Black Ball,	N. J. Bigley,	do.	Hugh Magam,	Sutersville.
Ocean mines,	W. L. Scott & Co.,	do.	John F. Hosack,	Scott Haven.
Armstrong's,	C. H. Armstrong & Son,	do.		Pittsburgh, Allegheny county.
White Ball,*	McCandless, King & Co.,	do.		Allegheny Bank, Pittsburgh.
Youghiogheny Valley,	John Blythe & Co.,	do.	John Blythe,	Youghiogheny Post Office.
Union Works,	Jacob Somer,	do.		Webster.
Gilmore's,	John Gilmore,	do.		do.
Guffy's,	Grand Lake Coal Company,	do.	Thomas Briggs,	do.
William Hodgson,	Jones & Watkins,	do.		do.
Iron City,	Phillips & Mettenzway,	do.		do.
Rostraver,	William Clark,	do.	Abram Rupert,	Water street, Pittsburgh city.
Tremont,	R. P. Clark & Co.,	do.	R. P. Clark,	Bellevernon.
*	Noah Speers,	do.	Noah Speers,	Bellevernon.
Sterling, No. 1,	J. M. Schoonmaker,	Fayette,	Joseph Loughrey,	113 Water street, Pittsburgh city.
Sterling, No. 2,	do.	do.	do.	do. do.
Sterling, No. 3,	do.	do.	do.	do. do.
Newmyer,*	Jacob Newmyer,	do.		Dawson Station.
Spring Grove,	Coehran & Kester,	do.	James Coehran,	do.
Fayette mines,	James Coehran,	do.	do.	do.
Jackson mines,	Jackson Mining Company,	do.	do.	do.
Tyrone mines,	Laughlin & Co.,	do.	R. P. Douglass,	Connellsville.
Henry Clay,	H. C. Frick & Co.,	do.	John White,	104 Fifth avenue, Pittsburgh city.
Frick mines,	do. do.	do.	do.	do. do.
Morgan, No. 1,	do. do.	do.	do.	do. do.
Morgan, No. 2,	do. do.	do.	do.	do. do.
Foundry,	do. do.	do.	do.	do. do.
Eagle,	do. do.	do.	do.	do. do.

Summit,	do. do.	do.	do.	do. do.
Tip Top,	do. do.	do.	Thomas Lynch,	94 Fifth avenue, Pittsburgh city.
Valley Mines,	do. do.	do.	do.	Dawson's Station.
Anchor Mine,	do. do.	do.	do.	Broadford.
Globe Mines,	A. A. Hutchinson & Bro.,	do.	George Wilson,	Scottdale, Westmoreland county.
Clinton Mine,	James Cochran & Co.,	do.	P. G. Cochran,	do. do.
Franklin Mines,	B. F. Kester & Co.,	do.	B. F. Kester,	do. do.
Furnace Mines,	Everson, Macrum & Co.,	do.	George Everson,	do. do.
Kiffer Mine,	W. A. Kiffer,	do.	W. A. Kiffer,	Smithfield street, Pittsburgh.
Lake Mine,	Henderson & Saylor,	do.	James Henderson,	do. do.
Dexter,	Joseph Stauffer,	do.	Samuel Fairchild,	Pennsville, Fayette county.
Painter Mine,	Rafferty & McClure,	do.	B. Braynell,	Connellsville.
Diamond Mine,	do. do.	do.	do.	87 Wood street, Pittsburgh city.
Pennsville Mine,	A. H. Sherrick,	do.	A. H. Sherrick,	do. do.
Moyer's Mine,	Cleveland Rolling Mill Company,	do.	Frank Bradford,	Connellsville, Fayette county.
Connellsville Shaft,	Pittsburgh & Connellsville Gas Coal & Coke Co.,	do.	C. Davidson,	Dunbar.
Connellsville Slope,	do. do. do.,	do.	do.	do.
Wickham Slope,	Cambria Iron Company.	do.	V. C. Elder,	do.
Morrel Slope,	do. do.	do.	do.	do.
Uniondale,	J. M. Reid,	do.	J. M. Reid,	do.
. . . . .	Samuel Colvin & Co.,	do.	B. Walters,	Mt. Braddock.
Deer Park,	Mahoning Coke Company,	do.	. . . . .	Dunbar.
Hill Farm	Dunbar Furnace Company,	do.	J. McLavy,	Lemont Furnace.
Ferguson Slope,	do. do.	do.	do.	Uniontown.
Mt. Braddock,	Hogsett Rankin,	do.	Fuller Hogsett,	do.
Frost Mine,	Percy Mining Company.	do.	. . . . .	do.
Youngstown,	Youngstown Coke Company,	do.	S. H. Steward.	Pittsburgh, Allegheny county.
Lemont Mines,	Hogsett, Hanna & Co.,	do.	Robert Hogsett,	Connellsville.
Stewart Iron Company,	Stewart Iron Company,	do.	. . . . .	do.
Leith Colliery,*	Chicago and Connellsville Coke Company,	do.	James Harrison,	Greensburg, Westmoreland county.
Mt. Braddock,	C. H. Armstrong and Son,	do.	J. J. Morris,	Dawson's Station.
*	Connellsville Coke and Iron Company,	do.	E. K. Hyndman,	
*	Connellsville Gas Coal and Coke Company,	do.	W. C. Wickham,	Fayette City.
. . . . .	Moore & Co.,	do.	. . . . .	do.
Rainey's Coke Works,*	Cleveland Iron Company,	do.	—— Rainey,	do.
Connecticut,*	Connecticut Coal Company,	do.		do.
Rutherford,	James Rutherford,	do.	Frank Rutherford,	Pittsburgh, Allegheny county.
Corondelet,	Frazer & Frye,	do.	H. B. Frye,	
Rutherford Mine,	Trumbull & Hall,	do.	John Hall,	
. . . . .	do. do.	do.	do.	
Excelsior,	C. H. Armstrong & Son,	do.	. . . . .	
O. K.,*	. . . . .	do.		
White Pine,*	. . . . .	do.		
Alps, No. 2,	Little Alps Coal Company,	do.	Joseph Underwood,	California, Washington county.
Alps, No. 1,	do. do.	do.	do.	do. do.
Cedar Hill,	Morgan & Dixon,	do.	. . . . .	do. do.
Garrows,	Joseph Garrow,	do.	. . . . .	do. do.
Umpire.	J. S. Cunningham & Co.,	do.	J. S. Cunningham,	Brownsville, Fayette county.
Berlin Mines,	B. D. Morgan & Co.,	Somerset,	B. D. Morgan,	Berlin.
. . . . .	Samuel Adams,	do.	. . . . .	do.
Hoffman Mine,	Hoffman & France,	do.	. . . . .	Garrett Station.
Hersh,	Baltimore and Cumberland Coal Company,	do.	J. J. Hoblitzell,	Keystone Junction.
Salisbury Central,	do. do. do.	do.	do.	do. do.

TABLE 1.—LOCATION OF COLLIERIES—*Continued.*

NAME OF COLLIERY.	Name of Company.	Location—County.	Name of Superintendent.	Post Office Address of Company.
Shaw Mines,	Cumberland and Elk Lick Coal Company,	Somerset,	A. Chamberlin,	Meyersdale.
Cumberland Mines,	Thomas Williams,	do.		do.
Keystone Mines,	Keystone Coal Company,	do.	S. C. Yarrington,	do.
	W. J. Smith & Co.,	do.	W. J. Smith,	Salisbury.
Myersdale Mines,	Myersdale Coal Company,	do.	John T. Hocking,	Meyersdale.
Salisbury Mines,	Thomas Williams,		J. M. Williams,	do.
Buffalo Creek Mines,*	Swede Iron and Coal Company,	do.	Silas L. Loomis,	Garrett Station.
Lane Colliery, No. 1,	Richard Langdon,	Bedford,	John Langdon,	Hopewell, Bedford county.
Lane Colliery, No. 2,	do.	do.	do.	do. do.
Mt. Equity,	Kemble Coal and Iron Company,	do.	William Lowder,	Riddlesburg.
Parrott,	do. do.	do.	do.	do.
Deval's Shaft,*		do.		
Conard Shaft,	R. B. Wigton,	do.	A. J. Wigton,	Six Mile Run.
Conard Drift,*	do.	do.	do.	do.
Defiance Mine,	A. Covalt & Co.,	do.		Riddlesburg.
Bee Hive,	Rody Maher,	do.	M. B. Maher,	Six Mile Run.

* Mines not operated in 1880. Total number, 260.

TABLE II.—*A statement showing characteristics, average number of employees, production, etc., of the respective collieries in the First Bituminous Mine District for the year ended December 31, 1880.*

NAME OF COLLIERY.	Character of coal—Bituminous or Semi-Bituminous.	Slope, shaft, or drift.	Number of pumps.	Number of engines.	Horse-power.	Number of boilers.	No. of miners—men.	No. of miners—boys.	Other employees.	Total employees.	No. of mules inside.	No. of mules outside.	No. of locomotives.	Total production of coal in tons.
Abe Hays,	Bituminous,	Drift,					35	2	4	41	3	3		
Allequippa,	do.	do.					99	4	8	111	8	3		33,755
American Works,	do.	do.					47	3	3	53	2	1		2,400
Amieville,	do.	do.	1				83	7	11	101	3	3		21,533
Amity,	do.	do.					120	13	20	153	8	3		58,813
Amity, No. 2,	do.	do.					60		6	66	4	1		5,341
Armstrong,	do.	do.					70	10	6	86	5	3		4,000
Banuer,	do.	do.					75	10	12	97	4			8,665
Beck's Run,	do.	do.	2	1	10	2	138		35	173	15	2	1	7,673
Berlin,	Semi-bituminous,	do.					57	3	7	67	3			6,200
Bessemer Coke Works,	Bituminous,	do.					50		6	56	4	5		
Black Diamond,	do.	do.					20	2	3	25	2			640
Boyle & Rafferty,	do.	Shaft,	3	1		4	45	1	8	54	5			7,500
Boyle & Rafferty,	do.	Slope,	2	1		3	38	1	8	47	5			6,800
Buckeye,	do.	Drift,	2			2	27		45	72	5	3		8,264
Buffalo,	do.	do.	1	1	10	1	45	2	15	62	5			
Camden,	do.	do.					129	11	30	170	12	4		46,920
Camp Hill,	do.	do.	2	2	60	2	108	10	20	138	5	2		20,230
Carondelet,	do.	do.					64		10	74	8	1		35,081
Clipper,	Semi-bituminous,	do.					49	7	10	66	7			2,164
Clipper Works,	do.	do.					60	10	11	81	8			3,400
Coal Run,	Bituminous,	do.					156	26	40	222	14	2	1	
Coal Ridge,	do.	do.	1	1		1	86	13	13	112	6			43,135
Conard,	Semi-bituminous,	Shaft,	2	2	40	2	17	2	8	27	4	6		6,585
Cornell & Werling's,	Bituminous,	Drift,	2	5		4	176	15	34	225	8	1		63,763
Cumberland,	Semi-bituminous,	do.					18	1	2	21	1			7,525
Cumberland and Elklick,	do.	do.					92	13	19	124	8			26,479
Deer Park,	Bituminous,	Slope,	2	2	36	5	32		5	37	4	2		11,456
Defiance,	Semi-bituminous,	Drift,					9	3	2	14	1	1		500
Diamond,	Bituminous,	do.	1	1			14		4	18	3			0,150
Eagle,	do.	do.	1	1	8	1	20		18	38	3	5		11,540
Eclipse,	do.	do.	1	1	40	1	70	14	9	93	5			3,400
Eldorado,	do.	do.	1			1	31	3	6	40	4	2		14,639
Enterprise Coal Works,	do.	Shaft,	1	1	30	1	30		3	33	2			1,200

TABLE II.—CHARACTERISTICS, AVERAGE NUMBER OF EMPLOYEES, ETC.—*Continued.*

NAME OF COLLIERY.	Character of coal—Bituminous or Semi-Bituminous.	Slope, shaft, or drift.	Number of pumps.	Number of engines.	Horse-power.	Number of boilers.	No. of miners—men.	No. of miners—boys.	Other employees.	Total employees.	No. of mules inside.	No. of mules outside.	No. of locomotive.	Total production of coal in tons.
Enterprise,	Bituminous,	Drift,	. . .	. .	. . .	. . .	140	10	15	165	22	1	. . .	10,180
Enterprise Coke Works,	do.	do.	. . .	. . .	.	. . .	13	. .	4	17	3	. . .	. . .	6,050
Ferguson,	do.	Slope,	1	2	. . .	2	20	1	4	25	2	1	. . .	3,860
Foundry Mine,	do.	Drift,	. .	. . .	. . .	. . .	19	.	15	34	3	1	. . .	10,862
Fort Pitt,	do.	do.	. . .	. . .	. . .	. . .	44	4	5	53	4	2		
Friek Mine,	do.	do.	. .	.	. . .	. . .	28	. .	23	51	5	2	.	15,592
Glendale,	do.	do.	. . .	. . .	. . .	. . .	31	2	4	37	1	1	.	10,312
Globe,	do.	do.	. . .	. .	. . .	. . .	40	3	10	53	8	.	. . .	6,500
Greensburg, No. 1,	do.	do.	.	.	. .	. .	6	.	1	7	.	.	. .	930
Greensburg, No. 2,	do.	Slope,	4	2	. .	2	48	2	14	64	4	2	. . .	14,900
Greenspring,	do.	Drift,	1	1	35	2	110	5	24	139	10			
Hampton,	do.	do.	. . .	. . .	. . .	. .	173	25	27	225	12	. . .	1	19,976
Hazlett, No. 1,	do.	Shaft,	3	1	. .	. .	45	1	8	54	5			
Hazlett, No. 2,	do.	Slope,	2	1	. .	. . .	38	1	8	47	5			
Henry Clay,	do.	do.	4	2	95	4	28	. .	22	50	5	2	.	16,140
Hill Farm,	do.	do.	1	2	80	6	31	7	6	50	4	2	1	45,433
Horner & Roberts,	do.	Drift,	1	1	. . .	1	200	. . .	45	245	17	. . .	1	11,200
Isabella Coke Works,	do.	Slope,	1	1	. . .	6	98	8	15	121	9	. . .	1	62,089
Iron City,	do.	Drift,	2	. . .	. . .	2	57	5	10	72	4	. .	4	5,720
Jefferson,	do.	do.	1	. . .	. . .	1	100	. . .	15	115	8	1	. .	17,920
Kiffer,	do.	do.	. .	. . .	. . .	. . .	16	. . .	3	19	4	.	. . .	4,900
Lane,	Semi-bituminous,	do.	. . .	. . .	. . .	. . .	44	4	4	52	7	2	. . .	14,400
Leechburg,	Bituminous,	do.	. .	. . .	. . .	. . .	78	10	15	103	8	. .	. . .	85,350
Legler,	do.	do.	.	. .	. .	. . .	10	4	1	15	1	. .	. . .	400
Lemont,	do.	Slope,	1	1	30	2	33	2	7	42	6	1	1	52,678
Loyalhanna,	do.	Shaft,	2	3	.	7	100	5	10	115	12	1		
M. Graver,	do.	Drift,	1	3	60	3	104	12	26	142	14	6	3	59,507
Milllwood,	do.	Shaft,	1	2	90	6	68	6	11	85	10	1	1	5,525
Morgan,	do.	Drift,	1	1	.	1	40	.	30	70	5	2	. . .	22,600
Morrell,	do.	Slope,	1	2	72	4	122	6	55	183	17	4	. . .	15,136
Moyer's,	do.	Drift,	1	. . .	. .	1	23	. .	4	27	4			
M. Saxman, junior,	do.	do.	. . .	. . .	. . .	. . .	40	2	8	50	6	. . .	1	61,203
Mt. Braddock,	do.	Slope,	1	1	60	4	30	.	9	39	6	1	. . .	6,100
Mt. Equity,	Semi-bituminous,	Drift,	.	. . .	. . .	. . .	26	2	8	36	6	1	. . .	17,366
National,	Bituminous,	do.	1	. . .	. . .	1	44	4	7	55	5	3	. . .	10,400

Nimick,	do.	do.	. . .	. . .	. . .	. . .	26	2	2	30	3	. . .	. . .	5,377
Nixon,	do.	do.	. . .	. . .	. .	. .	53	3	8	64	3	1	. .	23,097
Northside,	do.	do.	. . .	. . .	.	. .	123	. . .	11	134	. .	. . .	1	30,009
Oakridge,	do.	do.	. . .	. . .	. .	. . .	66	. .	12	78	6			
Ocean,	do.	do.	. . .	. . .	. .	. . .	161	9	23	193	11	. .	. . .	52,000
Oseeola,	do.	do.	. . .	. . .	. .	. .	71	10	13	94	8	1	. . .	3,100
Painter,	do.	do.	1	. . .	. .	1	42	3	14	59	7	. . .	. . .	24,200
Parish,	do.	Slope,	2	2	40	4	22	2	5	29	2	. . .	. . .	4,040
Parrott,	Semi-bituminous,	Drift,	. . .	. .	. . .	. . .	18	2	4	24	3	1	. . .	7,343
Penn, No. 4,	Bituminous,	do.	. . .	. . .	. . .	. . .	200	10	30	240	14	2		
Penn, Southside,	do.	Slope,	1	1	. . .	2	85	. . .	7	92	4			
Pennsville,	do.	Drift,	1	1	40	1	17	2	6	25	2	1	1	5,250
Pennsylvania Gas Coal Company, No. 1 shaft,	do.	Shaft,	2	2	. . .	4	174	19	34	227	12	1		
Pennsylvania Gas Coal Company, No. 2 shaft,	do.	do.	2	2	. .	4	216	24	55	295	13	3	1	
Pennsylvania Gas Coal Company, No. 4 drift,	do.	Drift,	. . .	. . .	. . .	. . .	195	5	35	235	13	2	1	
Pine Run,	do.	do.	1	1	. . .	1	113	11	13	137	7	1	1	22,017
Pittsburgh and Connellsville Gas Coal and Coke Co.,	do.	Shaft and Slope,	6	4	. .	7	91	2	126	249	4	4	. . .	155,787
Rising Sun Coke Works,	do.	Drift,	. . .	. . .	. .	. . .	20	. . .	3	23	2	1	. . .	4,280
Rock Run,	do.	do.	. . .	. . .	. .	. . .	42	5	9	56	2	2	.	6,582
Rostraver,	do.	do.	. . .	. . .	. .	. .	63	5	7	75	6	. .	. .	14,876
Salisbury,	Semi-bituminous,	do.	1	. . .	. .	. .	41	2	4	47	2	. . .	. .	18,109
Salisbury Centre,	do.	do.	. . .	. . .	. .	. .	61	8	10	79	3	. . .	. . .	1,640
Saltsburg,	Bituminous,	do.	. .	. .	. . .	. . .	79	1	23	103	7	6	.	78,942
Shafton,	do.	Shaft,	. . .	. .	. . .	. . .	85	. . .	. . .	85	. . .	. . .	. .	10,611
Six Mile Ferry, No. 1,	do.	Drift,	1	1	10	1	103	. . .	21	124	5	1	1	17,916
Six Mile Ferry, No. 2,	do.	do.	. . .	1	12	1	92	. . .	17	109	7	. . .	1	15,967
Southside,	do.	do.	. . .	. .	.	. .	178	. . .	6	184	. . .	. . .	. . .	115,527
Spring Hill,	do.	do.	. .	. .	. . .	. . .	32	. . .	. . .	32	. . .	. . .	. . .	24,891
Standard,	do.	Slope,	3	2	45	5	61	4	12	77	6	. . .	. . .	74,788
Sterling Coke Works,	do.	Drift,	3	.	. .	2	114	20	25	160	20	7	. . .	209,260
Streets Run,	do.	do.	1	1	40	2	117	13	13	143	8	4	1	32,567
Summit,	do.	do.	1	1	. . .	1	35	. . .	26	61	5	3	. . .	16,900
Tip Top,	do.	do.	. . .	. .	. .	. .	16	2	3	21	3	1	. . .	2,600
Tremont,	do.	do.	. .	. .	. .	. .	47	6	12	65	6	1	. .	5,208
Umpire,	do.	do.	.	. .	. . .	. . .	60	9	11	80	5	2	. .	26,902
Union Coke Works,	do.	do.	2	2	. . .	. . .	21	. . .	5	26	5	. .	. . .	3,500
Union Valley,	do.	do.	. .	. .	. . .	. . .	17	. . .	5	22	1	1	. . .	600
Waverly,	do.	do.	2	2	158	5	123	7	24	154	11	6	1	35,400
Welnman,	do.	do.	. . .	. .	. .	. . .	11	1	1	13	1	. . .	. .	1,141
Wickham,	do.	Slope,	2	1	60	2	26	5	7	38	5	4	. . .	14,124
White Heath,	do.	Drift,	1	1	15	1	60	7	7	74	5	2	. . .	4,139
William Stone's,	do.	do.	. . .	. . .	. . .	. . .	109	. . .	22	131	6	6	. . .	33,211
Wood mines,	do.	Slope,	2	1	20	1	41	5	3	49	2			
Youngstown,	do.	do.	3	2	76	3	38	2	5	45	3	. .	. . .	5,602
Youghiogheny,	do.	do.	. . .	. . .	. .	. . .	118	. . .	21	139	8	. . .	1	32,094
Total,			94	74	. .	134	7,706	523	1,615	9,844	672	154	26	2,229,595

TABLE III.—*A statement showing the method of ventilation, amount of air discharged, number of openings and headings, and size of inlets and outlets in the respective collieries of the First bituminous mine district.*

NAME OF COLLIERY.	HOW VENTILATED.	Diameter of fan—feet.	Size of furnace—feet.	Amount of air discharged per minute—feet.	Number of openings.	Number of headings.	Inlet—size of—sq. feet	Outlet—size of—sq. feet.
Abe Hays,	Furnace,		6x7x20	12,100	3	5	46	40
Alice,	do.				2	2	80	
Allequippa,	do.		8x8x24	15,360	6	7	44	40
Allison's,	Natural,			8,500	3	5	44	
Alpsville,	do.			6,730	4	5	72	40
American,	Furuace,		5x6x12	6,850	2	3	44	23
American Coal Works,	do.		8x8x24	19,740	3	5	44	21
American Coke Works,	Natural,			690	3	4	49	
Amity,	Furuace,		7x7x24	20,000	3	5	47	40
Anchor,	Steam exhaust,			20,000	3	4	45	46
Armstrong's,	Furnace,		7x7x24	22,500	3	4	40	45
Banner Works,	do.		8x8x24	13,640	3	8	48	40
Bee Hive,	Natural,			2,500	2	3	24	25
Beech Cliff,	Furuace,		7x7x24	17,160	3	10	48	33
Bell's, No. 1,	Natural,			2,500	9	4	48	40
Bell's, No. 2,	Furnace,		7x7x24	20,125	3	4	42	25
Bellview,	Natural,			5,672	4	5	42	
Berlin,	do.			3,000	2	2	34	15
Berry Cook & Co.,	Furuace,		7x7x20	12,000	3	5	46	23
Bessemer Coke Works,	Natural,			6,890	3	7	50	41
Black Ball,	do.			4,940	3	4	44	44
Black Diamond,	Fire basket,			5,160	3	2	41	28
Black Diamond,	Furnace,		6x7x24	15,250	5	7	41	50
Black Hills,	Natural,			4,200	2	2	40	28
Bower Hill,	do.			2,400	3	5	44	
Brier Hill,	Furnace,		6x6x10	4,390	3	3	40	26
Buckeye,	Natural,			1,200	4	3	49	38
Buffalo,	Furuace,		6x6x24	6,630	2	6	38	34
Caledonia,	Natural,			635	2	2	38	
Camden,	Furnace,		8x8x24	21,210	6	11	49	29
Camp Hill,	do.		7x7x30	26,350	4	9	50	48
Carondelet,	do.		7x7x20	11,200		4	49	45
Catsburg,	do.			3,900	3	8	45	39
Cedar Hill,	do.		6x6x12	6,190	2	4	40	
Champion Works,	do.		6x6x18	6,775	2	4	46	
Cherry's,	Natural,			2,500	3	4	41	32
Chess Pit,	Fan,	16		38,500	3	7	44	36
Cincinnati,	Furuace,		6x6x20	12,600	2	4	39	25
Clark's Slope,	do.		6x7x18	5,100	3	4	50	30
Cliff,	do.		6x6x18	21,560	2	9	40	35
Clinton,	Natural,			600	2	2	50	
Clipper,	Furnace,		6x6x18	7,200	3	3	48	42
Coal Bluff,	do.		7x7x20	11,645	3	10	41	58
Coal Ridge,	do.		8x8x20	14,300	3	8	44	39
Coal Run,	do.		6x7x24	20,910	7	21	44	34
Colvin & Co.,	Steam exhaust,			6,100	2	3	51	49
Conard Shaft,	Natural,			5,980	3	3	39	
Cook's,	do.			1,200	2	2	30	12
Corey's,	do.			2,100	5	2	48	
Cornell & Werling's,	Furnace,		7x9x30	23,840	4	15	43	48
Cumberland,	Natural,				4	4		
Deer Park,	Steam exhaust,			10,500	2	6	49	48
Defiance,	Natural,			960	2	2	40	
Dexter,	Furnace,			7,490	3	3	48	
Dexter Coke Works,	Natural,			7,300	3	3	49	40
Diamond,	do.			400	2	3	44	
Dillinger. Tarr & Co.,	do.				2			48
Eagle,	do.			4,150	3	3	48	
Eclipse,	Fan,	10		15,600	2	3	34	34
Enterprise,	Furnace and fan,	11		13,900	3	7	45	60
Enterprise,	Steam exhaust,			2,500	2	7	38	84
Enterprise,	Natural,			10,000	10	10	44	
Enterprise Coke Works,	do.			7,140	5	2		42
Eureka,	Furnace,			3,120	2	3	42	
Excelsior,	do.				2	2	43	
Fair Haven,	Natural,			3,600	4	10	60	41
Fayette,	do.			9,855	4	5	48	46
Ferguson,	Steam exhaust,			3,750	2	2	46	

TABLE III.—METHOD OF VENTILATION, &C.—*Continued.*

NAME OF COLLIERY.	HOW VENTILATED.	Diameter of fan—feet.	Size of furnace—feet.	Amount of air discharged per minute—feet.	Number of openings.	Number of headings.	Inlet—size of—sq feet.	Outlet—size of—sq feet.
Foster Slope,	Fan,	6		27,310	3		49	
Foundry,	Natural,			3,110	2	2	63	30
Franklin,	do.			650	3	3	23	38
Fort Pitt,	do.			4,400	4	5	40	32
Frick,	do.			4,600	4	5	42	42
Frost,	Steam exhaust,			6,875	2	3	49	
Fulton,	Furnace,		7x7x20	5,430	3	5	48	44
Furnace,	do.		6x6x20	12,600	5	4	48	26
Garrows,	do.			765	2		40	
Gilmores,	do.		7x7x24	16,345	4	6	46	
Glendale,	do.		6x6x10	3,460	3	3	40	44
Globe,	do.		6x7x20	5,930	3	7	49	
Globe,	do.		7x7x24	21,500	3	4	44	48
Grant,	do.		8x8x30	15,900	5	5	48	30
Greensburg,	Steam exhaust,			3,650	2	3	50	30
Green Springs,	Natural,			7,935	3	7	48	
Guffy's,	do.			3,140	2	4	44	
Haberman,	do.			9,760	6	5	44	
Hampton.	Furnace,		8x8x52	17,200	3	18	48	40
Hazlett, No. 1,	Steam exhaust,			6,540	2	8	44	
Hazlett, No. 2,	Furnace,		4x5x10	8,370	3	5	48	27
Henry Clay,	Steam exhaust,			1,200	4	5	50	33
Hersh,	Natural,			9 720	3	5	52	38
Hill Farm,	Steam exhaust,			10,250	3	3	38	49
Horner & Roberts,	Furnace,		7x9x18	20,475	3	9	41	45
Huston's,	do.		4x6x10	3,860	2	5	44	24
Iron City,	do.		7x7x30	11,390	3	4	41	40
Isabella Coke Works,	Steam exhaust,			3,790	5	8	50	38
Jackson,	Natural,				2	1	41	
Jackson,	do.			16,150	3	3	44	43
Jefferson,	Steam and furnace,			12,000	4	7		30
Keeling's, No. 1,	do. do.			4,800	4	3	60	25
Keeling's, No. 2,	Natural,			3,600	4	10	60	41
Keystone,	do.				3	5	42	44
Keystone,	Furnace,		7x7x1[illegible]	11,840	10	27	49	40
Keystone,	Natural,			6,700	5	7	51	
Kiffer,	do.			3,200	2	3	34	45
Knob,	Steam exhaust,			8,600	2	8	50	39
Lake,	Natural,			6,300	4	3	49	
Lane, No. 1,	Furnace,		5x6x10	5,600	2	3	40	35
Lane, No. 2,	do.		6x6x12	3,120	2	2	41	
Laurel Hill,	do.		6x7x18	8,950	2	8	46	25
Leechburg,	do.		7x7x24	10,890	4	6	42	29
Lemont,	Steam exhaust,			11,600	4	5	40	49
Little Alps, No. 1,	Furnace,			4,360	5	3	43	
Little Alps, No. 2,	Natural,			1,300	2	2	41	
Locust Grove,	do.			700	2	2	32	
Lovedale,	Furnace,				5	6	44	
Lower Road,	Natural,			11,300	4	10	48	46
Loyalhanna,	Steam and furnace,			9,300	3	6	48	28
McCloskey Road,	Natural,			9,340	3	15	42	39
Markles,	do.			2,500	3	4	44	
Meyersdale,	do.				2	2	40	
M. Graver,	do.			7,000	6	8	44	43
Midway Block,	Furnace,			5,310	3	4	39	
Mill Bank,	do.		4x6x16	2,850	2	3	25	18
Millwood,	Fan,	12		11,500	2	6	49	40
Milesville,	Furnace,		7x7x20	11,325	3	4	38	22
Mine No. 4,	do.		7x10x30	29,925	6	18	48	60
Monastery,	Steam exhaust,			1,800	2	2	54	
Montours,	Furnace,		7x7x24	14,000	5	13	48	35
Morewood, Shaft A,	Fan,	6		7.685	2	10	40	42
Morewood, Shaft B,	Steam exhaust,			10,040	2	9		30
Morgan, No. 1,	Natural,			11,850		3		49
Morgan, No. 2,	do.			5,230	2	5	53	
Morrell Slope,	Steam exhaust,				2	3	48	
Moyer's,	Natural,			400	2	3	46	
M. Saxman & Co.,	do.			9,660	3	4	50	39
Mullen's,	Furnace,		6x6x16	375	4	3	45	
Mount Braddock Coke Works,	do.		4x5x10	2,940	3	3	42	40

TABLE III.—METHOD OF VENTILATION, &C.—*Continued.*

NAME OF COLLIERY.	HOW VENTILATED.	Diameter of an in feet	Size of furnace.	Amount of air discharged per minute.	Number of openings.	Number of headings.	Inlet—size of—sq. feet.	Outlet—size of—sq feet.
Mount Braddock,	Steam exhaust,			12,300	3	4		44
Mount Equity,	Furnace,			2,(80	2	3	39	18
National,	do.			9,300	3	6	44	25
Neels,	do.		6x7x20	10,535	3	6	49	
New Eagle,	do.		6x7x20	8,800	4	5	48	36
Nimick,	do.		6x7x18	1,750	4	2	35	30
Nixon,	do.		7x7x24	16,610	2	4	44	41
North Side,	Natural,			6,000	6	6	44	
Oak Hill, No. 3,	Furnace,		6x6x18	9,180	3	3	49	
Oak Hill, No. 4,	do.		8x9x24	33,100	6	8	48	44
Oak Ridge,	do.		7x7x26	15,200	5	7	46	35
Ocean,	do.		8x8x30	20,310	4	7	48	51
Old Eagle,	do.		6x8x28	14,850	3	6	36	40
Old Larimer's,	do.		7x9x30	9,100	3	4	42	
Osceola,	Natural,			8,000	4	7	49	41
Overton,	do.			2,150	3	3	48	
Painter,	do.			16,700	3	4	48	
Parrot,	Furnace,			2,100	2	2	44	11
Penney's,	do.		6x7	9,650		11	40	45
Pennsville,	do.		6x6x20	15,000	3	3	41	60
Penn South Side,	Natural,			9,840	3	7		48
Phœnix,	do.				2	2	41	
Pittsburgh Union,	Furnace,		5x7x12	4,840	3	3	32	46
Pittsb'g and Conn. G. C. and C. Co.	Steam exhaust,			5,280	5	8	48	
Pine Run, No. 1,	Furnace,		5x5x12	6,880	3	3	46	
Pine Run, No. 2,	do.		8x8x20	18,400	3	10	48	48
Plum Creek, No. 2,	Natural,			3,900	9	12	48	44
Primrose,	Fire baskets,			7,400	3	4	49	30
Rainey's,					1		48	
Rea,	Natural,			2,100	2	4	40	
Rising Sun,	do.			6,951	4	3	49	
Robbins & Jenkins,	Furnace,			9,350	4	10	44	28
Rock Run,	Natural,			2,575	3	7	44	4
Rostraver,	Furnace,			7,000	4	4	40	29
Rutherford,	Natural,			8,300	2	2	41	28
Salisbury Central,	do.			3,400	2	4	54	21
Salisbury,	do.				3	3	60	30
Saltsburg,	Furnace,		6x7x18	12,250	4	6	49	24
Sandy Creek, No. 1,	do.		7x7x24	10,300	6	6	44	29
Sandy Creek, No. 2,	do.		4x5x10	6,400	10	5	43	44
Shaft No. 1,	Fan,	12		23,110	3	38	48	51
Shaft No. 2,	Fan,	12		36,000	3	35		40
Shaft No. 3,	Fan,	18						
Shafton,	Steam exhaust,			7,340	2	5	39	
Shaw,	Fire basket,			7,450	4	11		21
Shire Oaks,	Furnace,		6x6x18	11,910	3	5	43	29
Six Mile Ferry, No. 1,	do.		6x6x18	9,100	7	4	45	
Six Mile Ferry, No. 2,	Natural,			8,600	4	3	56	48
Smith,	Furnace,		7x7x24	18,560	2	4	44	41
South Side,	do.		14x10x30	33,660	4	38	50	51
South West,	Natural,			8,960	5	5		56
Spring Grove,	do.			12,880	4	4	52	54
Spring Hill,	Furnace,		5x5x10	7,500	3		41	
Standard Coke Works,	Fan,	6		34,640	2	9	30	54
Sterling, No. 1,	Natural,			11,600	4	6	58	49
Sterling, No. 2,	do.			3,740	4	5	53	51
Sterling, No. 3,	do.			7,280	3	4	52	50
Stockdale's,	Furnace,		6x7x12	10,000	3	5	48	40
Street's Run,	do.		5x6x18	17,110	5	6	43	25
Summer Hill,	do.		6x7x10	21,100	3	4	42	45
Summit,	do.		4x6x10	7,200	3	4	45	16
Tip Top,	Natural,			4,928	3	2	44	28
Tremont,	Furnace,		6x7x20	10,100	2	4	50	28
Turnbull & Hall, No. 1,	do.		5x6x16	3,600	3	8	47	49
Tyrone,	Natural,			7,350	4	5	49	48
Umpire,	Furnace,			4,500	3	5	48	
Uniondale,	Steam exhaust,			7,200	3	4	19	36
Union Coke Works,	Natural,			4,620	3	2	42	25
Union Valley,	do.			2,500	2	2	40	
Union Works,	Furnace,		5x6x8	4,970	3	3	40	25
Upper Road,	Natural,			9,360	6	9	41	48

TABLE III—METHOD OF VENTILATION, &C.—*Continued.*

NAME OF COLLIERY.	HOW VENTILATED.	Diameter of fan in feet.	Size of furnace.	Amount of air discharged per minute.	Number of openings.	Number of headings.	Inlet—size of—sq. feet.	Outlet—size of—sq. feet.
Valley Works,	Furnace,		4x6x12	7,200	3	5	39	18
Venture,	Fan,	16		15,600	2	3	34	34
Walnut Hill,	Furnace,			8,430	3	5	48	25
Waverley,	do.		7x9x18	22,150	3	12	46	38
Wenone,	Natural,			1,200	3	3	41	
Westmoreland Shaft,	Fan,	12		29,300	2	10	50	
White Heath,	Steam exhaust,			5,300	3	4	41	
Wickham,	do.			6,500	2	3	50	56
William Hodgson,	Furnace,		7x7x30	1,300	3	5	44	
William Neel's,	Natural,			6,590	3	5	50	34
William Stone,	Furnace,		6x6x24	10,500	4	7	49	35
Willow Grove,	do.		6x7x15	7,900	3	5	42	26
Wood's Run,	do.		5x6x12	7,120	2	3	49	29
Wood's,	do.		6x6x18	7,350	3	3	31	40
Warne's,	do.			6,600	3	7	48	28
Youghiogheny,	Natural,			5,600	3	8	43	40
Youngstown,	Steam exhaust,			9,000	2	5	41	72

TABLE IV.—*Showing an average monthly statement of the ventilation of the respective collieries in the First bituminous mine district during the year 1880.*

NAME OF COLLIERY.	JANUARY.						FEBRUARY.						MARCH.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Allequippa,	. . .	. . . .	. . .	. . .	. .	. . . .	190	10,400										
Amieville,							85	4,080	100	4,800	150	4,200	200	9,600	250	10,000	230	6,440
Amity, No. 1,	235	15,130	235	15,130	235	15,130	130	4,750	139	4,750	132	6,485	160	8,960	100	3,800	270	13,500
Amity, No. 2,							170	9,520	120	4,800	220	11,240	200	7,000	200	6,080	160	8,400
Anchor,	273	11,460	30	1,890	146	12,060	270	11,340	20	1,260	540	17,250						
Banner Works,			. . .	. .	. . .	. . . .	165	7,920	150	6,750	300	9,000						
Black Diamond,	. . .	. . .	. . .	. .	. .	. .	140	4,760	145	4,865	150	5,040						
Coal Run,	. . .	27,080	. .	24,000	. . .	27,030	. . .	23,290	. . .	23,160	685	24,650	.	23,8?0	. . .	27,400	700	23,800
Conard Shaft,								8,000	. . .	7,562		8,100	. . .	8,000	. .	3,885	. . .	9,834
Cumberland and Elk Lick,	52	5,824	. . .	. . . .	91	5,824	60	6,720	. .	.	106	6,784						
Deer Park,	310	16,740	149	7,840	350	19,600	. . .	. . .			. .	. .	340	17,800	. .	. . .	460	25,760
Enterprise Coke Works,	450	9,000	.	. .			300	9,600	150	3,080								
Ferguson Slope,	312	13,104		. .	303	16,968	. .	. .	. .	. .			335	19,050		. .	356	19,600
Fort Pitt,	200	8,000	300	9,000	300	9,000	210	8,400	100	4,800	210	8,820	200	8,600	200	8,600	225	8,100
Globe,	. . .	. . . .	. . .	. . . .	. .	. . . .	. .	. . . .	. . .	. . . .	. . .	. . .	. .	. . . .	. . .	. . . .	520	22,000
Green Springs,	305	17,500	. . .	. . . .	300	16,800	.	. . . .	. . .	. . . .	. . .	. . .	76	8,572	. .		134	8,574
Hill Farm,	.	. . .	. . .	. . . .	. .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . .	270	12,960	125	7,000	225	12,600
Horner & Roberts,	. . .	. . . .	. .	. . . .	. .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . .		22,140	. .	10,250		20,473
Iron City,	. . .	. . . .	. .	. . . .	. .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . .	220	8,560	100	2,950	270	11,785
Isabella Coke Works,								8,930	. . .	4,000	.	10,495	223	9,360	. . .		214	9,100
Jefferson,	230	9,660	277	11,534	280	11,640	223	9,360	. . .	.	282	11,844		12,500		9,800		10,700
Lane,	. . .	. . . .	. . .	. . . .	. .	. . . .		12,000		9,600	. . .	11,200	100	4,800	260	4,060	500	8,000
Leechburg,	100	4,800	260	4,160	500	8,000	100	4,800	260	4,160	500	8,000	240	11,520	200	9,600	285	17,100
Lemont,	240	11,520	230	11,040	190	11,400	200	9,600	320	15,360	250	15,000	300	8,946	50	3,752	380	18,240
Loyalhanna,	140	6,132	55	3,864	370	17,760	150	7,680	75	2,610	380	18,210	544	24,000	300	10,800		
M. Graver,	. . .	. . . .	. . .	. . . .	. .	. . . .	500	22,000	400	14,400	. . .	24,000	220	9,000	. . .	. .	195	8,775
Millwood,	200	9,000	100	5,000	190	9,300	. . .	. . . .	. . .	. . . .	. . .	. . .	300	18,000	350	10,000	100	10,600
M. Saxman,	390	18,000	350	10,000	100	12,000	310	20,000	350	12,000	. .	12,000	160	6,720	140	6,500	200	8,400
National,	362	13,974	487	19,480	526	15,780	160	6,720	140	6,500	180	7,560	310	15,932	342	14,640	400	12,000
							. . .	. . .	. . .	. . .	. . .	. . .						

Nimick,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	200	2,100	. . .	. . .	. . .	2,370	223	11,924	110	6,784	240	12,864
Nixon,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	9,600	100	4,800	240	9,840				11,450		
North Side,	. . .	17,000	. . .	16,200	. . .	. . .	. . .	. . .	. . .	. . .	. .	13,080	. .					8,000		
Oak Ridge,	350	12,489	213	9,912	353	14,220	167	15,576	160	6,490	442	17,680	240	9,600	200	8,000	420	16,830
Ocean,	. . .	. . .	. . .	. . .	. . .	. . .	180	8,640	190	9,120	190	9,120	195	9,360	55	2,640	200	9,600
Parrot,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	210	5,197	. .	. . .	160	5,720
Penn Gas Coal Company's Shaft, No. 1,	. . .	22,880	. . .	21,640	. .	23,400	. .	23,358	. . .	20,690	. . .	23,143	. . .	26,000	. .	22,600		26,000
Penn Gas Coal Company's Shaft, No. 2,	. . .	36,600	. .	33,950	. .	36,200	. .	35,000	. .	34,738	. .	36,000	. .	35,040	805	34,680	875	35,000
Penn Gas Coal Company's Drift, No. 4,	. .	27,200		25,900		25,840		28,860		26,590	. .	28,860		25,160		24,170	370	25,160
Pittsb'gh and Connellsville Gas Coal and Coke Co.,	180	10,680	100	8,768	100	9,678	140	11,251	125	10,320	125	10,320	93	8,137	85	5,583	85	5,533
Pine Run,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	125	6,125	. .	. . .	260	6,240
Rising Sun,	125	7,000	156	8,736	204	9,792												
Rostraver,	170	5,610	120	4,837	135	5,568	218	7,194	138	5,174	174	7,177	218	7,194	164	6,150	174	7,177
Saltsburg,	200	9,200	290	33,150	225	12,005	220	10,940	300	14,800	240	12,000	185	9,120	180	13,090	210	10,560
South Side,	. . .	. . .	. .	12,330	. .	26,300	. . .	. . .	. .	12,720	. . .	27,030	. . .	. . .	. . .	18,245	. . .	31,590
Spring Hill,	. . .	3,500	. . .	3,000	. .	. .	. . .	4,308	. . .	. . .	. . .	. . .	. . .	. . .	. .	4,000	. . .	4,300
Street's Run,	. . .	. . .	. . .	. . .	. .	. .	387	13,545	. .	. .	523	21,840	. .	. .	. .	8,925		20,118
Umpire,	200	12,978	200	8,400	220	9,780							325	17,500	310	15,190	350	17,150
Valley,	83	5,312	16	1,296	112	9,080	150	9,600	. . .	. . .	70	6,300						
Waverly,	214	21,640	330	17,350	340	24,480							800	38,400	590	. .	390	29,880
Weinman,	80	2,880	60	2,100	170	2,720	210	8,400	100	4,890	210	8,820	90	3,240	50	1,500	180	2,880

TABLE IV.—VENTILATION OF COLLIERIES—*Continued.*

NAME OF COLLIERY.	APRIL.						MAY.						JUNE					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Abe Hays,	120	4,620	80	3,080	110	4,235	260	7,410	. . .	. .	180	7,410	170	10,390	280	10,780	270	10,390
Amleville,	410	13,740	290	13,920	420	15,760	160	7,680	185	7,400	175	8,400	55	2,640	70	4,840	70	3,360
Amity, No. 2,	240	14,840	150	6,110	393	17,560	270	15,270	140	3,140	230	12,200						
Anchor,	105	4,410	220	7,790	. .	. . . .		. . .	. .	.	. . .		200	14,400	. .	. . . .	400	18,200
Black Diamond,		3,800		3,700	. . .	3,790												
Coal Ridge,	294	14,112	244	8,784	400	14,469	212	10,176	240	11,520	230	14,530	225	10,800	155	5,580	310	14,570
Coal Run,	. .	21,100	450	22,550	650	22,100	600	20,400	410	19,380	600	20,400						
Conard Shaft,	. . .	8,000	.	6,470	. . .	9,834												
Deer Park,	. . .	. . .	. . .					. .					360	21,440	. .	. . . .	450	25,200
Eldorado,	250	3,036	. .	.	62	3,822	200	2,448	. . .	. . . .	49	3,283	480	4,608	. .	. .	94	5,093
Fort Pitt,	200	8,000	75	3,600	215	7,940	200	8,000	75	3,600	225	8,100						
Globe,	100	3,920	60	3,360	130	4,780												
Green Springs,	305	17,080	. .	. . . .	300	16,800	320	17,980			274	15,112						
Hill Farm,			. .	. . . .			225	12,600	80	4,480	350	18,900	310	14,880	. .	. . .	390	21,450
Iron City,	220	8,560	. .	2,854	230	10,075		14,700				14,850	250	10,500	265	11,130	255	10,710
Isabella Coke Works,	223	9,366	.		214	8,988												
Lane,	100	4,800	260	2,616	500	8,000	90	4,320	250	4,000	450	7,200						
Leechburg,	250	12,000	200	9,000	220	13,200	250	12,000		10,400	300	18,000	250	12,000	240	11,520	230	13,800
Lemont,	175	7,560	90	5,600	445	21,360	175	7,476	95	3,120	475	22,800	175	8,640	220	8,920	480	26,800
Loyalhanna,	480	23,640	185	7,400	400	19,200	300	14,300	190	7,190	330	12,550						
M. Graver,	215	9,675	. .	. . . .	205	9,625	185	8,417	. . .	. . .	170	7,735	195	8,775	. . .	. . .	190	8,550
Millwood,	300	17,000	300	10,000	.	. .	275	15,000	300	10,000	.	10,000	3 0	12,000	300	8,000	100	10,000
M. Saxman,	140	5,460	130	5,460	170	5,740	160	6,920	304	9,500	170	7,140	200	8,400	170	7,140	210	7,820
National,	319	12,662	479	14,779	467	14,010	338	13,111	390	15,600	385	11,550						
Nixon,	220	12,275	120	6,512	300	13,612	230	12,771	150	7,476	300	16,236	270	12,276	150	7,476	300	16,672
North Side,	. . .	11,500	. . .	. . . .	. . .	. . .		9,080										
Oak Ridge,	156	6,240	129	5,840	402	16,800	140	5,040	160	6,400	360	14,400	218	10,144	245	9,125	422	16,880
Parrott,	.	. .	. .				160	4,400	. . .	. .	390	9,658	200	5,500	310	6,975	310	6,975
Penn Gas Coal Company's Shaft, No. 1,	. . .	20,910	450	27,000	415	21,665		20,910	410	20,090	410	20,910						
Penn Gas Coal Company's Shaft, No. 2,	. .	37,000	760	38,240	925	37,000	900	36,000	695	33,960	900	36,000	. .	32,000	640	33,500	800	32,000

Penn Gas Coal Company's Drift, No. 4,	. .	. .	28,755	500	26,980	405	28,755	.	27,120	560	26,000	270	27,120	. .	30,450	250	29,700	435	30,450
Pittsb'gh and Connellsville Gas Coal and Coke Co.,	98	8,458	90	6,906	90	6,906	110	9,384	115	9,695	115	9,695	160	8,768	110	9,389	110	9,389
Pine Run,	. .	. .	. .	. .	. .	. .	220	5,280	. .	. . . .	110	5,390	280	7,560	. .	. . . .	120	5,880
Rostraver,	183	6,105	148	5,650	152	6,270	211	10,220	225	11,110	230	11,500	165	8,020	275	12,075	230	11,500
Saltsburg,	235	11,133	. .	. .	. .	28,300	. . .	19,080	. . .	24,000	. . .	. . .	. .	11,280	. .	. .	. .	24,720
South Side,	. . .	14,060	. .	4,300	. .	. .	. . .	36,000	. .	. . .	. .	. . .	. .	. . .	. .	6,450	. .	. . .
Spring Hill,	. .	. . .	. .	7,840	428	17,976	. . .	. . .	. .	. . .	. .	. . .	. .	. . .	. .	. . .	. .	. . .
Street's Run,	225	12,150	244	10,290	300	14,700	420	20,580	375	18,375	435	28,000	450	21,070	40	3,000	450	21,050
Umpire,	150	10,800	210	. . . .	80	7,200	. .	. . . .	. .	. . . .	. .	. . . .	240	13,440	. .	. . . .	110	8,800
Valley,	520	24,960	. .	. . . .	360	25,920	. .	. . . .	. .	. . . .	260	18,720	440	22,920	440	22,920	285	20,520
Waverly,																		

TABLE IV.—VENTILATION OF COLLIERIES—*Continued.*

NAME OF COLLIERY.	JULY.						AUGUST.						SEPTEMBER.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Abe Hays,	220	9,240	210	8,085	220	9,240	230	10,780	280	10,780	350	13,475						
Amieville,	75	3,600	100	4,800	100	5,600	120	7,220	170	9,280	105	4,840	70	3,360	100	4,800	70	3,360
Amity,	. .	. . .	. . .	. . .	. . .	. . .	. .	. . . .	. . .	. . .	. . .	. . .	270	15,100	160	5,600	400	16,800
Anchor,	110	6,360	. . .	. . .	100	5,600												
Camden,	. . .	. . . .	. . .	. . .	. . .	. . .	. . .	. . . .	. . .	. . .	. . .	. . .	. .	20,000	.	16,500	. .	20,000
Camp Hill,	. . .	. . . .	. . .	. . .	. . .	. . .	475	21,800	265	14,300	520	24,960	130	13,472	140	5,851	250	9,720
Carondelet,	125	6,125	100	6,000	200	12,800	200	9,800	200	9,100	160	10,240	150	7,350	175	10,500	200	12,800
Coal Ridge,	260	12,480	140	5,040	. . .	13,600	260	12,980	125	4,500	. . .	13,450	282	13,440	125	4,500	. .	18,396
Deer Park,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . .	410	21,420	. . .	. . . .	440	24,640
Eclipse,	. . .	16,000	. . .	. . . .	. . .	16,500												
Fort Pitt,	. . .	. . . .	. . .	. . . .	. . .	. . . .	125	5,000	75	3,600	210	6,300						
Greensburg,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . .	190	18,620	150	7,200	430	21,070
Green Springs,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . .	320	17,980	. .	. . .	274	15,112
Hill Farm,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . .						
Isabella Coke Works,	230	13,110	105	5,180	360	19,440	225	10,800	. . .	. . .	220	9,280						
Leechburg,	240	10,080	. . .	. . .	250	10,500	255	10,510	. . .	. . .	260	10,960						
Lemont,	205	9,840	190	7,850	200	12,000	260	12,480	315	10,300	260	15,600	200	9,600	300	14,300	210	16,400
M. Graver,	400	22,424	110	6,100	410	23,184	490	13,475	160	6,900	460	25,816	520	23,500	210	8,640	480	26,880
Millwood,	180	8,100	.	. . .	175	7,875	180	8,100	. .	. .	175	7,875	200	9,000	.	. . .	187	8,325
Mt. Equity,	300	16,800	300	13,000	. . .	11,000	300	16,000	300	11,600	100	10,000	325	18,000	300	12,000	100	11,000
National,	. . .	. . . .	. . .	. . . .	. . .	. . . .	200	6,600	370	9,157	. .	. . .	140	3,850	.	. . .	260	6,435
Nimick,	303	11,808	259	11,800	363	10,890	313	12,112	277	15,180	400	12,000	205	11,880	412	16,480	375	11,850
Nixon,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	4,600	. .	. . .	.	4,600	. . .	4,500	.	. . .	. .	. . . .
Oak Ridge,	220	12,276	160	7,696	280	15,006	260	15,552	180	9,152	350	13,330	220	12,276	150	7,476	300	16,072
Ocean,	160	7,680	57	2,052	463	10,420	210	8,880	162	5,832	432	17,280	211	8,340	156	5,616	385	15,320
Osceola,	. . .	. . . .	. . .	. . . .	. . .	. . . .	230	11,136	120	5,760	430	23,220						
Parrott,	260	11,549	. . .	. . .	119	11,186												
Penn Gas Coal Company, Shaft 2,	. . .	. . . .	. . .	. . . .	. . .	. . . .	400	8,100	. .	. .	170	8,330						
Penn Gas Coal Company, Drift 4,	. . .	35,000	700	34,300	875	35,000	. . .	35,000	730	34,660	875	35,000	. . .	34,000	700	34,000	850	35,000
Pittsb'gh and Connellsville Gas Coal and Coke Co.,	105	26,950	505	25,250	385	26,950	. . .	27,760	505	26,260	385	27,820	. .	29,520	485	26,675	410	29,520
	. . .	9,087	100	8,768	100	8,768	. . .	. . . .	. .	. . . .	. .	. . .	170	13,114	165	12,803	165	12,803

Salisbury Central,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	4,720
Saltsburg,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	13,000
Saxman,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	7,980
South Side,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	30,740
Spring Hill,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Standard,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	17,000
Street's Run,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	16,044
Tip Top,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Umpire,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Valley,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Waverly,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Wickham,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Wood,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Youngstown,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
	185	8,780	250	8,240	210	10,500	185	8,850	280	13,830	220	11,000	65	4,680	50	3,600	30	4,720
	190	7,980	. . .	6,720	220	9,240	160	6,720	140	6,500	180	7,560	240	11,300	320	15,820	260	13,000
	. . .	. . .	. . .	11,760	. . .	30,480	. . .	. . .	. . .	10,350	. . .	32,400	180	7,560	160	6,720	190	7,980
	. . .	8,600	. . .	6,360	. . .	. . .	. . .	. . .	. . .	8,000	. . .	. . .	. . .	. . .	. . .	14,260	. . .	30,740
	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	15,900	. . .	9,000	. . .	. . .
	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	11,322	. . .	12,800	. . .	17,000
	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	306	. . .	. . .	. . .	382	16,044
	300	18,900	. . .	. . .	150	6,750	. . .	. . .	. . .	. . .	. . .	. . .	432	21,168	. . .	. . .	426	20,874
	75	4,725	. . .	. . .	50	4,500	297	14,256	. . .	. . .	212	15,204	66	4,224	20	1,440	73	4,088
	320	15,326	. . .	. . .	212	15,264	. . .	. . .	. . .	. . .	. . .	. . .	165	4,950	150	5,250	180	7,200
	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .						
	. . .	. . .	. . .	. . .	. . .	. . .	200	11,200	. . .	. . .	135	12,285						

TABLE IV.—VENTILATION OF COLLIERIES—*Continued.*

NAME OF COLLIERY.	OCTOBER.						NOVEMBER.						DECEMBER.					
	Velocity of air current per minute.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Abe Hays,	260	10,010	260	10,010	270	10,395												
Amieville,	170	8,160	170	8,160	180	8,640	240	11,520	210	10,080	380	18,240						
Amity,	220	12,220	120	3,600	220	13,200	230	12,880	160	9,500	400	15,000						
Banner,	. . .	. . .	. .	. . .	. .	. . .		19,000	. . .	10,300	.	20,000						
Berlin,	. . .	3,500	. . .	2,100	. .	3,900												
Bessemer Coke,	. . .	. . .	. . .	. . . .	. .	. . .	. .	. .	. .	. .	. .	. .	450	25,400	350	19,600	450	22,050
Boyle & Rafferty Shaft,	160	7,840	. . .	. . . .	150	6,000	160	7,940	25	1,400	165	6,435	198	9,555	50	2,400	215	8,385
Boyle & Rafferty Slope,	105	5,460	. .	. . . .	110	4,620	105	5,460	20	1,120	135	5,400	150	4,850	40	2,000	120	3,960
Camden,	. .	. . .	. . .	. . .	. .	. . .		20,000		16,000		20,400						
Camp Hill,	240	16,997	130	5,031	300	14,008	310	10,688	250	9,720	400	15,660	260	14,700	240	12,900	450	21,600
Carondelet,	160	7,840	150	9,000	200	12,800	125	6,125	150	9,300	175	11,200	120	6,360	120	4,680	125	8,000
Coal Ridge,	280	13,440	90	3,420	.	18,440	300	14,300	120	3,960		19,710						
Coal Run,	. . .	. . .	. . .	. . .	. .	. . .		25,840	170	6,970	760	25,840	. . .	24,000	. .	8,800	. . .	25,500
Conard,	. .	. . .	. . .	. . . .	. .	. . . .	125	7,000		9,000	. . .	7,500						
Cornell & Werlings,	. .	. . .	. . .	. . . .	. .	. . .	.	27,500	. . .	19,320	. . .	28,300						
Deer Park,	380	20,580	. . .	. . . .	400	22,400												
Defiance,	. .	. . .	. . .	. . . .	. .	. . .	.	700		. . .	. . .	750						
Diamond,	65	2,925	. .	. . . .	70	2,870	65	2,600	15	840	135	4,050	100	4,000	. . .		120	3,600
Eagle,	84	4,704	. . .	. . . .	79	3,792	120	6,720	15	757	130	6,240	85	4,760	60	2,100	95	4,560
Enterprise,	.	. . .	. . .	. . . .	.	. . .	400	8,000		. .	500	10,000						
Enterprise Coke Works,	80	3,360	. . .	. . . .	100	4,800	190	7,980	20	960	180	7,560	230	2,660	80	3,840	260	7,800
Foundry,	70	3,001	. . .	. . . .	. .	. . .	100	3,000	15	631	81	4,185	90	2,700	75	2,100	60	3,240
Frick,	90	3,330	. .	. . . .	320	13,440	120	4,600	20	840	330	13,860	80	3,360	15	630	100	4,200
Greensburg,	190	18,620	160	7,840	290	14,210												
Green Springs,	. . .	. . .	. . .	. . . .	.	. . .	. .	. .	. .	. .	. .	. . .	305	17,080	. . .	.	300	16,800
Henry Clay,	80	4,480	. . .	. . . .	60	2,835	90	5,040	30	1,500	70	3,155	70	3,920	25	1,300	60	2,700
Hill Farm,	. . .	. . .	. . .	. . . .	.	. . .	400	19,200	. .	. . . .	420	23,520						
Isabella Coke Works,	. .	. . .	. . .	. . . .	.	. . .	260	10,920	. .	. . . .	290	12,180						
Kiffer,	107	5,564	. .	. . . .	157	3,925	137	5,480		. .	175	4,378						
Leechburg,	. . .	. . .	. .	. . . .	.	. . .	250	12,000	220	10,300	220	13,200	230	11,040	300	14,400	250	15,000

Lemont,	520	23,660	120	7,166	480	26,880	. . .	. . . .	. . .	. .	. . .	. .	620	39,296	440	23,744	520	29,120
M. Graver,	205	9,225	.	. . .	195	8,675	200	9,000	195	8,775	200	9,000	224	10,060	. . .	. . .	220	9,900
Millwood,	300	12,000	225	9,000	. . .	9,000	.	15,000	.	9,000	.	15,500						
Morewood, Shaft A,	. . .	. . . .	. .	. . .	. .	. . .	130	6,760	40	1,800	140	7,840	120	6,240	. . .	. . .	110	6,160
Morewood, Shaft B,	. .	. . . .	. .	. . . .	. .	. . .	450	13,500	25	1,300	300	15,300	135	7,020	. .	. .	145	8,960
Morgan,	130	8,840	. . .	. . . .	180	6,815	160	10,880	35	1,820	200	7,675	100	6,800	25	1,300	150	5,700
Morrell,	.	. .	. .	. .	. . .	.	170	6,120	100	4,500	70	6,860						
Moyer's,	18	540	16	640	16	1,024	22	660	16	640	10	640						
Mt. Braddock,	. . .	. . .	. . .	. . . .	. .	. .	.	.	.	. .	.	. . . .	310	20,224	200	12,800	400	25,600
Mt. Equity,	300	7,425	. .	. .	170	4,670	300	7,425	120	3,150	210	5,775	330	8,167	. .		270	8,910
National,	372	14,374	323	12,920	398	10,500	437	16,934	537	10,480	556	16,980	463	18,272	527	20,120	547	16,410
Nimick,	.	5,000																
Nixon,	400	23,112	200	12,232	300	18,580	260	15,553	180	9,152	400	14,380	300	17,712	200	12,232	500	16,730
Oak Ridge,	239	9,212	232	8,455	360	14,400	232	9,156	177	6,372	470	18,800	119	4,684	252	8,917	450	19,200
Ocean,	420	17,840	. . .	. . . .	530	21,260												
Painter,	300	9,900	. . .	. . . .	175	11,200	300	9,900	. . .	4,500	175	11,200	110	9,680	65	3,120	120	8,640
Parrish,	. . .	. . . .	. . .	. . . .	. .	. . .	320	18,240	. .	. .	440	24,640						
Penn,	. . .	. . . .	. .	. .	. .	. . . .	. .	6,720		6,720	. . .	6,720	. .	12,960	. . .	8,640	. . .	12,960
Penn Gas Coal Company, Shaft 1,	. . .	.	.	.	.	.	. .	27,000	450	18,900	. .	22,000	. . .	23,970	. . .	18,000	. . .	23,970
Penn Gas Coal Company, Shaft 2,	. .	32,920	955	26,535	848	33,920	. .	39,200	800	31,040	980	39,200	. . .	37,600	. . .	33,150	. . .	36,000
Penn Gas Coal Company, Drift 4,	. .	28,800	450	21,070	390	28,080		27,720	375	18,090	385	27,720	. . .	27,360	.	20,750	. . .	27,360
Pennsville,	. . .	. . .	. . .	. . .	. .	. . . .	340	13,940	270	9,450	300	16,200	410	16,810	330	11,550	280	15,120
Pine Run,	.	. . .	. . .	. . .	. .	. . . .	500	22,500	410	18,000	550	26,900						
Pittsb'gh and Connellsville Gas Coal and Coke Co.,	175	13,424	165	12,803	165	12,803	180	13,725	165	12,739	165	12,739	300	21,384	280	19,942	280	19,942
Saltsburg,	190	9,105	250	12,330	240	12,000	210	9,800	185	9,065	260	13,000	230	10,700	350	18,560	260	13,000
Saxman,	180	7,560	160	6,720	190	7,950	190	7,980	189	7,560	200	8,000	180	7,560	165	6,930	180	7,560
Shafton,	. . .	10,500	. .	9,750	. .	11,466	. .	12,600	. . .	10,900	. . .	13,220	. . .	12,300	. . .	9,360	.	13,230
Southside,	. . .	. . . .	. . .	14,490	. .	31,440	. .	.	. . .	22,080	. . .	32,640	. . .	. . . .	. . .	12,200	. .	32,190
Spring Hill,	. . .	. . . .	. . .	8,500	. . .	. . .	. . .	9,500	. . .	9,500	. .	. .	.	. .	. . .	7,800		
Standard,	. . .	. . . .	. . .	. . . .	. .	. . .			. .	. . .	. .	. .	370	16,800	350	16,000	360	21,600
Sterling Coke Works,	. . .	. . . .	. . .	. . . .	. .	. . .	120	7,650	110	6,300	140	9,340						
Street's Run,	. .	. .	250	9,250	357	14,994	268	10,582	377	13,949	495	20,790	375	13,764	375	13,764	551	23,142
Summit,	100	4,490	. .	. . .	140	6,515	160	7,320	. .	. . .	135	7,965	90	4,230	15	682	80	4,720
Tip Top,	110	8,800	.	. . . .	40	1,680	. .		. .	. . . .	.		90	4,320	. . .	. . . .	70	3,360
Umpire,	250	12,250	240	11,760	245	12,005	510	25,175	. . .	. . . .	513	25,137	550	26,950	550	. . . .	560	27,440
Union Coke Works,	130	4,290	. . .	. . . .	140	4,375	210	9,740	. . .	. . . .	190	9,800	300	9,900	. .	. . . .	220	8,800
Union Valley,	. .	. .	. .	2,500	.	2,650												
Valley,	260	11,700	200	10,500	95	6,080												
Waverly,	350	12,600	200	8,000	300	19,200	400	14,400	250	10,000	340	21,760	450	16,200	200	8,000	340	21,860
Wickham,	. . .	. . . .	. . .	. . . .	. .	. . .	74	4,736	30	2,160	84	4,704	102	6,528	50	3,600	118	6,508
Wood's Run,	. . .	. . . .	. . .	. . . .	. . .	. . .	195	5,850	140	4,900	180	12,000						

LIST OF ACCIDENTS *occurring in the mines of the First Bituminous Coal District of Pennsylvania, for the year ended December 31, 1880.*

DATE.	Name of Person Injured.	Age.	Married or single.	No. of Orphans.	Name of Colliery.	Location—county.	Date of Investigation	Nature and Cause of Accident.
Jan. 8	William Jack,	25	Single,		Cornell & Werling's,	Allegheny,		Arm broken.
8	Peter Kaylor,	40	Married,		Greensburg mine,	Westmoreland,		Hurt slightly by fall of coal.
24	John Daugherty,	47	Married,	1	Umpire mine,	Fayette,	Jan. 27	Fatally injured by fall of slate.
24	Morgan Gaskell,		Married,		Umpire mine,	Fayette,		Hurt slightly by fall of slate.
21	William Sethman,	15	Single,		Waverly mine,	Westmoreland,		Broken thigh by falling coal.
22	U. D. Spangler,	26	Married,	2	Keystone mine,	Somerset,	Feb. 10	Killed by falling coal.
19	Charles Fenney,	18	Single,		Walnut Hill,	Washington,		Killed by wagons.
26	Joseph Geiger,	23	Married,		Shaft No. 1,	Westmoreland,		Fatally injured by falling slate.
20	George Keith,	27	Married,	2	Neel's mine,	Washington,	Mar. 4	Killed by fall of coal.
Feb. 1	Robert Cauthrie,	45	Married,		Shaw mine,	Somerset,		Leg bruised slightly.
1	William Riley,	17	Single,		Shaw mine,	Somerset,		Leg bruised slightly.
1	John Melvin,	30	Married,		Amieville mine,	Westmoreland,	Feb. 25	Foot bruised.
24	Sheddrick Lyndsley,	28	Married,		Fort Pitt,	Allegheny,		Back and head injured by fall of slate.
8	Jesse Sowers,	21	Single,		Catsburg mine,	Washington,		Burned slightly by explosive gas.
8	Ben Forsythe,	16	Single,		Catsburg mine,	Washington,		Burned slightly by explosive gas.
8	James Cumbric,	15	Single,		Catsburg mine,	Washington,		Burned slightly by explosive gas.
8	Dan Parkinson,	14	Single,		Catsburg mine,	Washington,		Burned slightly by explosive gas.
8	Walter Wesley,	14	Single,		Catsburg mine,	Washington,		Burned slightly by explosive gas.
8	Albert Haywood,	13	Single,		Catsburg mine,	Washington,		Burned slightly by explosive gas.
Mar. 3	Peter M. Ginness,	14	Single,		Allequippa,	Allegheny,		Burned by explosive gas.
1	Thomas Redman,	18	Single,		Little Alps,	Fayette,	Mar. 4	Foot bruised by wagons.
5	Calbert Barnan,	20	Single,		American,	Washington,	10	Killed by fall of coal.
12	William Taylor,	14	Single,		Horner & Roberts,	Allegheny,	15	Killed by fall of slate.
1	M. Haywood,	34	Married,		Catsburg,	Washington,	10	Body bruised by fall of roof.
2	John W. Geary,	22	Married,		Cliff mines,	Washington,	19	Burned by explosive gas.
17	Thomas Roach,	35	Married,		Coal Bluff,	Washington,	19	Leg broken by falling slate.
17	Francis McNeel,	35	Married,		Cincinnati,	Washington,	19	Seriously injured by fall of slate.
10	Peter Hoak,	50	Married,		Leechburg Colliery,	Westmoreland,		Leg broken by falling slate.
20	John Steffin,		Married,		Cornell & Werling's,	Allegheny,		Ribs broken by fall of slate.
29	Joseph Eakler,	32	Married,		Oak Ridge,	Allegheny,		Hurt slightly by fall of slate.
31	John Jones,				Waverly mines,	Westmoreland,		Back hurt by fall of slate.
19	John Davidson,	16	Single,		Jones & Laughlin's,	Allegheny,		Thigh broken by fall of slate.
24	Newbold Everett,		Married,		Catsburg,	Washington,		Leg hurt by fall of slate.
20	Peter McCorey,	40	Married,	5	Jones & Laughlin's,	Allegheny,	Mar. 22	Thigh broken by fall of slate.
22	Benjamin Mitchell,	17	Single,		North Side,	Westmoreland,	22	Killed by falling slate.
12	Samuel Hamilton,	70	Married,		New Larimer,	Westmoreland,		Killed by falling slate.
3	Ferdinand Waterman,	44	Married,	3	Heberman's,	Allegheny,	14	Fatally injured by slate; died March 17.
April 5	Robert McQuillam,	55	Married,		Nixon mines,	Allegheny,	April 6	Fatally injured by fall of roof; died April 5.
13	Jacob Hawk,	20	Single,		Shaft No. 1,	Westmoreland,	14	Ribs broken by falling slate.
								Killed by wagons.

April	15	Robert Oliver,	35	Married,		Enterprise mine,	Allegheny,	Apr.	16	Leg broken by fall of roof coal.
	15	Robert Maughn,	16	Single,		Lower Road,	Allegheny,		16	Leg broken by falling slate.
	26	Henry Hart,	18	Single,		Youghiogheny,	Allegheny,			Hand hurt by wagons.
	8	Hugh McBride,	72	Married,		Amity mine,	Allegheny,			Leg broken by fall of coal.
	10	Edward Lightcop,	27	Single,		Millwood shaft,	Westmoreland,			Leg broken by fall of coal.
	14	David Jones,	22	Single,		Standard mine,	Westmoreland,			Burned slightly by explosive gas.
	14	Thomas Smith,	28	Single,		Standard mine,	Westmoreland,			Foot sprained by fall.
	15	Henry Shoupe,	28	Married,		Standard mine,	Westmoreland,			Leg broken by wagons.
	26	Thomas Cassidy,	45	Married,		Catsburg mines,	Washington,			Thigh broken and face badly cut by fall of slate.
	20	John McGore,	40	Single,		Stockdale,	Washington,	Apr.	29	Leg broken by fall of slate.
	26	James Daley,	19	Single,		Shaft No. 1,	Westmoreland,			Leg broken by fall of slate.
	13	William Nalegard,	25	Married,		Waverly mines,	Westmoreland,			Collar-bone broken by falling slate.
	15	John McGinness,	44	Married,		Abe Hays,	Washington,			Hurt by fall of slate.
	15	William McGinness,	15	Single,		Abe Hays,	Washington,			Leg broken by falling slate.
	13	H. M. Householder,	24	Married,		Saltsburg mines,	Westmoreland,			Hurt slightly by fall of slate.
	13	Samuel Johns,	22	Married,		Saltsburg mines,	Westmoreland,			Hurt by wagons.
	13	John Rush,				Saltsburg mines,	Westmoreland,			Hurt slightly by fall of coal.
	26	John Peters,	23	Single,		Amieville mine,	Westmoreland,			Hand and leg hurt by falling slate.
May	4	Philip J. Kline,	30	Married,		Coal Run,	Westmoreland,	May	5	Arm broken by fall of slate.
	6	James Duffy,	15	Single,		Mansfield Coal Company,	Allegheny,			Hurt by blast.
	3	Lewis Davis,				M. Graver & Co.,	Allegheny,			Cut about head and face by fall of slate.
	14	Thomas Buzza,	54	Married,	3	Lower Road,	Allegheny,			Fatally injured (died next day) by blow from prop.
	14	Patrick Farrel,	60	Married,		New Eagle,	Washington,	May	16	Fatally injured by falling slate.
	17	Alexander White,	50	Married,	6	Corey & Co.,	Allegheny,			Killed by falling slate.
	15	Emanuel Roudolph,	22	Single,		Upper Road,	Allegheny,			Hurt seriously by falling slate.
	21	Alfred Wethers,	19	Single,		Upper Road,	Allegheny,	May	28	Injured seriously by falling slate.
	24	Peter Smith,	35	Single,		Pine Run,	Allegheny,		26	Injured seriously by fall of slate.
	17	Martin Shoultz,	55	Married,		Green Springs,	Allegheny,			Leg broken.
	29	James Clark,	25	Single,		Amleville,	Westmoreland,			Back hurt by falling slate.
	21	Wilber Hollafield,	28	Married,		Morewood mine,	Westmoreland,			Hurt by wagons.
	1	David Griffith,	15	Single,		Lovedale,	Allegheny,			Leg and arm broken by fall of roof.
		Charles McCartney,		Married,		Lovedale,	Allegheny,			Hurt seriously by fall of slate.
June	3	Henry Wall,	53	Widower,	7	Old Eagle,	Allegheny,	June	7	Killed instantly by falling slate.
	3	Charles Moruingstar,	20	Single,		Mansfield Coal Company,	Allegheny,		3	Hurt by wagons.
	5	David Safret,	40	Married,		Monastery,	Westmoreland,		25	Leg broken by falling slate.
	19	John Russell,	18	Single,		Globe mine,	Fayette,		21	Killed instantly by fall of roof.
	8	Edward Daley,	24	Single,		Mine No. 4,	Westmoreland,	July	7	Leg broken by falling slate.
	14	J. V. Huff,	44	Married,		Saltsburg mine,	Westmoreland,			Hurt slightly by falling coal.
	24	Edwin Underwood,	38	Married,		Nixon mines,	Allegheny,			Hurt by falling coal and slate.
	29	Lester Herbert,				Morewood mine,	Westmoreland,			Hurt by falling off the cage.
	19	James Fairchild,	66	Married,		Fayette mine,	Fayette,			Foot broken by fall of roof.
July	2	John Curry,	35	Married,		Morewood,	Westmoreland,	July	9	Burned by explosive gas.
	26	William Lowe,	23	Single,		Standard,	Westmoreland,		28	Burned by explosive gas.
	26	Benjamin Hickman,	37	Married,		Standard,	Westmoreland,		28	Burned by explosive gas.
	14	William Jolliff,	28	Married,		Anchor,	Fayette,			Leg injured by wagons.
	28	Thomas Jones,	40	Married,		Clipper,	Washington,			Hurt slightly by falling slate.
	28	Henry Rowley,	40	Married,		Clipper,	Washington,			Hurt slightly by falling slate.
	14	William Wilhelm,	45	Married,		Oak Ridge,	Allegheny,			Shoulder fractured by falling state.
	15	John Cochran,	21	Single,		Hoekin,	Somerset,			Killed by lightning in mine.
Aug.	3	Van Laughlin,	26	Married,		Plum Creek,	Allegheny,			Arm broken by falling slate.
	10	James Breen,	50	Married,		Enterprise,	Allegheny,			Leg broken by wagons.
	17	James McClinchie,	40	Single,		Enterprise,	Allegheny,			Killed by falling slate.
	10	Robert Morris,	35	Married,		Sterling Works,	Fayette,			Seriously hurt by wagons.

LIST OF ACCIDENTS IN THE FIRST BITUMINOUS MINE DISTRICT—*Continued.*

DATE.	Name of Person Injured.	Age.	Married or Single.	Number of orphans.	Name of Colliery.	Location—county.	Date of investigation.	Nature and Cause of Accident.
Aug. 31	William Rees,	35	Single,		Buffalo,	Washington,		Leg broken by falling slate.
6	William Chester,	18	Single,		Buffalo,	Washington,		Leg broken by railroad cars.
28	John Conley,	50	Married,		Summerhill,	Allegheny,		Killed by falling slate.
27	George Bear,	18	Single,		Keeling's,	Allegheny,		Killed by wagons.
28	Robert Stewart,	26	Single,		Enterprise,	Westmoreland,		Arm broken by wagons.
31	William Perrin,	25	Single,		Keystone,	Somerset,		Slightly hurt by falling slate.
1	Jerry Hazlett,	40	Married,		Sterling,	Fayette,		Slightly hurt by fall of prop.
26	Augustus Kimkel,				Waverly,	Westmoreland,		Hurt by falling slate.
4	R. H. Clark,	45	Married,		Standard,	Westmoreland,		Slightly hurt by wagon.
4	J. Lyons,	33	Married,		Standard,	Westmoreland,		Slightly hurt by wagon.
	William Miller,				Ocean Mine,	Westmoreland,		Burned slightly by explosive gas.
4	Andrew Woods,	24			Nixon Mines,	Allegheny,		Foot hurt by falling slate.
Sept. 20	Peter Gusgerberg,	38	Married,		National,	Allegheny,		Foot crushed by slate and wagon.
25	John E. Painter,	19	Single,		Saltsburg,	Westmoreland,		Eye injured by piece of steel.
30	Timothy Grim,	66	Married,	4	Youghiogheny,	Allegheny,	Oct. 4	Fatally injured by falling slate.
	Edward Blain,	52	Married,		Amity,	Allegheny,		Leg broken by falling slate
	John Flerner,	35	Married,		Clipper,	Washingtou,		Finger mashed by falling slate.
22	Robert Morgan,	17	Single,		Allequippa,	Allegheny,		Leg broken by wagons.
2	John Ormrod,	40	Single,		Cincinnati,	Washington,		Crushed between wagons.
6	John Moody,	40	Married,		Summit,	Fayette,		Back injured by falling off wagons.
29	Dan. Boas,	50	Married,		Lower Road,	Allegheny,		Injured about head and face by falling slate.
20	John Surve,	36	Single,		Lower Road,	Allegheny,		Both hands cut by fall of slate.
22	Thomas Smith,	24	Single,		Upper Road,	Allegheny,		Back hurt by fall of roof.
29	Robert White,	46	Married,		Upper Road,	Allegheny,		Leg fractured by wagons.
Oct. 21	Christopher Beamer,	26	Single,		Street's Run,	Allegheny,	Oct. 23	Killed by falling slate in room.
14	Joseph Bradley,	35	Married,		Waverly Mine,	Westmoreland,		Foot broken by fall of slate.
18	Peter Zimmer,	45	Married,		Waverly Mine,	Westmoreland,		Foot broken by fall of slate.
29	Patrick Quieen,	19	Single,		Sterling Works,	Fayette,		Hand seriously cut by wagous.
	J. Baxter,				Ocean Mine,	Westmoreland,		Slightly hurt by falling slate.
4	Thomas Lawrence,	64	Married,		McClosky Road,	Allegheny,	Oct. 5	Killed by fall from bridge outside mine.
16	H. Pendlebury,				Tremont Mine,	Westmoreland,		Hand mashed by fall of coal.
Nov. 4	Bud Bucker,	30	Married,		Salisbury,	Somerset,		Shoulder broken by slate.
15	John James,	28	Married,		Morrell,	Fayette,		Hurt by falling slate.
17	James King,				Sterling Works,	Fayette,		Squeezed between wagons.
19	James Farrell,				Sterling Works,	Fayette,		Foot hurt by wagons.
29	John Brindle,				Sterling Works,	Fayette,		Struck pick in foot.
19	Joseph Barr,		Married,		Millwood Shaft,	Westmoreland,		Leg broken below knee by fall of slate.
27	S. D. Dannials,	30	Married,		Berlin Mines,	Somerset,		Foot bruised by falling slate.

Nov.	3	William Magher,	26	Single,		Laurel Hill,	Allegheny,	Nov. 4	Killed by falling slate in room.
	8	Abram Torrace,	36	Married,	4	Cincinnati,	Washington,	11	Fatally injured by fall of coal and slate.
	24	John Walthower,	53	Single,		Cliff Mine,	Washington,	29	Killed by fall of coal in room.
	19	John Laughlin,	35	Married,		Banner Works,	Washington,		Leg and ribs broken by falling slate.
	11	Edward Hodgens,				Allequippa,	Allegheny,		Leg broken by falling slate in room.
	19	John Hague,	14	Single,		Buffalo Mines,	Washington,		Arm cut off by wagons.
Dec.	7	Lawrence Driscoll,	47	Married,	5	Sandy Creek,	Allegheny,	Dec. 12	Fatally injured by wagons; died on the 9th.
	10	Thomas Williams,	60	Widower,		Osceola Mine,	Allegheny,		Seriously injured by falling slate.
	13	Smith Martin,	17	Single,		Alpsville Mine,	Allegheny,	Dec. 15	Fatally injured by falling slate.
	18	John Watkins,	72	Married,		American Works,	Allegheny,	20	Killed by locomotive outside.
	27	James Watson,	22	Married,		Summer Hill,	Allegheny,	29	Leg broken by falling slate.
	23	William Jones,	50	Married,		Osceola Mines,	Allegheny,		Leg and back broken by falling slate.
	6	Christopher Meyers,	30	Single,		Sterling Mines,	Fayette,		Seriously hurt by fall of roof.
	15	William Price,	28	Married,		Street's Run,	Allegheny,		Leg broken by kick from mule.
	15	Thomas Bains,	21	Single,		Waverly Mines,	Westmoreland,		Killed by falling coal.

SECOND DISTRICT.—J. J. Davis, Inspector.

To the Honorable A. K. DUNKLE,

Secretary of Internal Affairs:

SIR: I have the honor of submitting my annual report as inspector of mines for the Second bituminous coal district for the year ended December 31, 1880.

Before another annual report will be due my present term of office will have expired. My present commission is dated on the 15th day of May, 1877, hence my term of office will expire on the 15th of May, 1881.

The present report contains the number of accidents and deaths resulting from injuries received in and about the mines of this district. During the year there has been twenty-seven accidents reported, of which two has proved fatal. One resulting in the death of Aaron Pettigrew, a miner, on the 12th of February, by an explosion of carbureted hydrogen gas at the Bellview mine. The other resulting in the death of John Sullivan, Jr., by a fall of roof in the Fairmount Mine, No. 1, on the 20th of February. The results of the inquests in both cases are embodied in this report.

About the middle of December, I issued a circular addressed to the operators and those having charge of the mines for the purpose of obtaining the necessary figures to arrive at the aggregate production, number of persons employed, and the machinery used, &c.

The circulars were returned from several of the mines filled with the required information; others paid no attention to the request.

From those received I am enabled to make an approximate estimate of the production of the district, and although the mines have not been worked near up to their capacity, still I find the production exceeds that of 1879.

From the facts furnished the following estimates are made:

Number of tons mined of 2,000 pounds each,	2,318,880
An increase over 1879 of	737,760
Number of persons employed (inside,)	4,125
Number of persons employed (outside,)	675
Total number of persons employed,	4,800
Increased number of persons employed over 1879,	1,372
Number of mines in operation,	75
Average number of persons employed in each mine (inside,)	55
Average number of persons employed at each mine (outside,)	9
Number of fatal accidents reported,	2
Number of non-fatal accidents reported,	25

Causes of accidents:

By fall of roof,	7

By fall of coal, ... 7
By explosion of gas, ... 1
By mine cars, ... 9
By sundry causes, ... 3

In the general condition of many of the mines there has been a marked improvement made during the year. The ventilation and drainage improved, and as the working faces of a mine are continually advancing as long as mining operations are carried on, the question of how to ventilate properly should always be present in the minds of those having it in charge. Some of the mines have enlarged their capacity and have adopted steam instead of horse or mule power to do the hauling; and I notice at some mines in the district a desire to improve the quality of the coal and to convert it into coke, for which purpose there have been coke ovens built and machines erected for washing the coal.

For the benefit of those contemplating coking their coal, I have thought proper to send accompanying this report the description and drawings furnished me by Samuel Diescher of his coal washing machine.

In the report will also be found the following tables: Table No. 1, showing location of collieries; No. 2, the characteristics, number of employés, production, etc.; No. 3, a statement showing the method of ventilation, amount of air discharged, number of openings and headings, and size of inlets and outlets; No. 4, showing average monthly statements of the ventilation of the respective collieries in the district.

Very respectfully,

Your obedient servant,

J. J. DAVIS,
Inspector.

BRADY'S BEND, PA., *December 31, 1880.*

ACCIDENT No. 4. Aaron Pettigrew, a miner employed in the Bellview mine in East Deer township, Allegheny county, was fatally injured February 12 by explosion of gas, and died in about fifteen hours after the explosion. Aaron Pettigrew, with his brother Oliver, and George Nicholas and William Humphreys were working in two parallel entries, the Nicholas and Humphreys one being the entry and the intake air-way. The one in which the two brothers Aaron and Oliver Pettigrew worked was the air-course and returned air-way, the distance between the entries from road to road being 38 feet, which was measured in the last break-through; the distance from break-through to face of entry 37 feet, and to face of air-course 15 feet. I was informed by the entry men that it was always the custom for the men not to commence working in the air-course until the gas was cleared out of the entry first and then out of the air-course. But on the morning of the fatal explosion it appears that Aaron was in a hurry to get

some coal down that had been left hanging from the day before, and that he had gone in before his fellow miners, and had gone much earlier than usual; even his brother, who worked with him, had no knowledge of his intention of going to work at that early hour.

The boss of this mine is a practical miner, and a gentlemen that I feel confident would do everything in his power to secure the health and safety of the men employed under him, and would not allow anyone to risk his life without duly cautioning him to use all means to detect and prevent danger; and I have do doubt that Pettigrew was considered competent to examine the work, but it appears from the way he acted that morning that he in a thoughtless manner had neglected his own safety and gone without the Davy lamp which was there for him. He took his naked light into the break-through and laid it there while he was brushing the gas back; then went to his lamp without thinking of his danger and lifted it up, igniting the gas. His object then being, according to his own statement, was to go back then for the Davy lamp to see if the face was cleared of gas. It may be that, owing that this mine was troubled with gas only in this part of the workings, and here only sometimes in comparatively small quantities, that the deceased this morning was thrown off his guard. On my arrival at the place, after being notified of the accident, I found that an inquest had been held. Below will be found a copy of the verdict of the jury as obtained by me from the coroner.

INQUESTS.

An inquisition indented, taken at East Deer township, in the county of Allegheny, on the 13th day of February, A. D. 1880, before me, William W. Hope, Coroner of the county aforesaid, upon the view of the body of Aaron Pettigrew, then and there lying dead, upon the oaths and solemn affirmation of Charles O. Amberson, Samuel Klingensmith, Charles Uhlinger, George Hensel, William Nicholas, John M. Watt, good and lawful men of the county aforesaid, who being sworn and affirmed, and charged to inquire, on the part of the Commonwealth, when, where, and how, and after what manner the said Aaron Pettigrew came to his death, do say, upon their oaths or affirmations aforesaid, that the said Aaron Pettigrew came to his death from being burnt by gas explosion in Bellview mines, at Hite station, on West Pennsylvania railroad, on the morning of February 12, 1880, and that from the evidence taken, the deceased did not take the proper precaution, in this, that he had not taken the safety-lamp, but entered with the open lamp, and we are of the opinion that the deceased came to his death from his own negligence. We are also of the opinion that all the known appliances are used in this pit to prevent explosion, if properly heeded by the miners. And so the jurors aforesaid, upon their oaths or affirmations, as aforesaid, say that the aforesaid Aaron Pettigrew, for the cause aforesaid, in manner and form aforesaid came to his death, and not otherwise.

In witness whereof, as well of the aforesaid coroner, we, the jurors, have hereunto put our hands and seals, on the day and year, and at the place above mentioned.

WILLIAM H. HOPE.	[SEAL.]
CHARLES O. AMBERSON.	[SEAL.]
SAMUEL KLINGENSMITH.	[SEAL.]
CHARLES UHLINGER.	[SEAL.]
WILLIAM NICHOLAS.	[SEAL.]
GEORGE HENSEL.	[SEAL.]
JOHN M. WATT.	[SEAL.]

ACCIDENT No. 5.—John Sullivan, a miner, was fatally injured February 20, at Fairmount mine, No. 1, by a piece of rock from the roof falling on him. The deceased and Samuel Woodrow were working together in a room, and at the time of the accident John Sullivan was taking a rest, sitting under the rock talking to his brother James and Homer Fritz. They worked in another room and came in to have a talk with John about the day's work. The rock dropped upon John Sullivan without a moment's warning, and caught him under the center of it. I found by measurement the rock to be twelve feet long, two feet wide across the middle, tapering to each end, and being nearly of an uniform thickness of eighteen inches from end to end. The accident happened in the afternoon between three and four o'clock, and he died about six o'clock that evening. Sullivan was thirty-seven years of age, single, and living with his aged parents, who were mainly dependent upon him for their support.

I ordered an inquest to be held and below will be found some of the testimony taken and the verdict rendered:

Inquisition on the dead body of John Sullivan, junior, of Fairmount City, Clarion county, Pennsylvania.

SAMUEL WOODROW, *sworn:*

I reside at Fairmount, Clarion county, Pennsylvania, am twenty-five years old, past. I have followed coal mining for eight or ten years. Sullivan and I had been working yesterday together, they were hurrying us in to have our cars filled. We were just filling our last car when John Sullivan came back from the face where he had been working, he came to where I was. James Sullivan and Homer Fritz came into our room, where we were working, joking about filling cars; I turned around to push some coal into the front end of my car, and as I turned around to get another shovelful of coal to throw into the car, the rock fell and rubbed along the top of my head. I saw then that John Sullivan was under the rock, all but his head and shoulders, and he made some kind of a moan. I could not state what he said. James Sullivan called us to take hold and turn it off if we could. We caught hold of it; I got a post under it, and Fritz told me to pull him out, and some one said to lift, that he could get himself out. We lifted up the rock and he got out, but I cannot say

whether he came out himself or whether he was pulled out. I started for the doctor. I know nothing further about how he got out of the bank. I did not know that the rock was unsafe. I sounded the rock, I thought it was solid. We noticed a break across the roof, but did not notice a second break. We had some timbers there and intended to put them up before we would come out. I do not know that we talked about the rock being unsafe. I sounded it and afterwards he (John Sullivan) sounded it. I was not afraid of the condition the rock was in. We had been crowded more yesterday with cars than usual. I can't tell how far the road post is in, I think eight or ten feet.

S. WOODROW.

JACOB SHERMAN, *sworn:*

I reside at Fairmount. I am twenty-seven years old. I have followed working in the coal mines about four years. I am not mining coal now. I am laying track in the bank. I just came there a few minutes before the rock fell, to lay a turn for John Leonard at the next room. I had laid down two or three ties, when I heard something falling. I ran over to the other room. I heard them holloing. They said John Sullivan was under the rock. We all caught hold, and tried to get it off. We turned the rock so that he could get out—I do not know how he got out. I do not know the size of the rock. I thought it was ten or twelve feet long. I did not pay much attention to the size of the rock. As near as I can tell, he was near the middle of the rock. I did not know that there was any loose rock in the roof. I cannot tell how long John Sullivan was under the rock, but I think not more than four or five minutes. I was at the end of the rock. We turned it towards the face. His back was towards the room, his face towards the entry.

his
JACOB × SHERMAN.
mark.

Attest: J. J. DAVIS.

JAMES SULLIVAN, *sworn:*

I reside at Fairmount City. I am twenty-six years old. I follow coal mining generally. I have worked at it since I was a small boy. I am a brother of John Sullivan, deceased, who is now lying dead. Myself and Fritz were working together. I went over, and said I am getting mighty cold. John said you ought to be cold, filling six or seven cars, and just at that moment the rock fell. I did not notice the rock fall, it put out some of the lamps. I had just come into the room when it fell. I had no suspicion of the roof being dangerous. I never heard John Sullivan say that he was afraid of his roof, but he cautioned me to be cautious of the roof in my room. He was always very cautious of the roof in his room. He said, watch boys, you had better post up, you are getting your post back or it will come down; he had reference to our room. I do not know how far his posts were back. I think John Sullivan's age is about thirty-eight. I

know when we lifted the rock, he said hold it, and I can get out. He got out himself. He said I am hurt, I cannot use my legs.

JAMES SULLIVAN.

HOMER FRITZ, *sworn:*

I reside in Fairmount. My age is twenty-six years past. My occupation is coal miner. I have followed that about ten years. I was in John Sullivan's room when the rock fell on him. There were five or six of us in taking off the rock. He was under the rock quite a while, I think four or five minutes. I got some water after we got Sullivan out, and bathed his face, he said he felt very sick. He did not attach any blame of the accident to any body. This happened about half past three o'clock, P. M. I was not present when he died. I saw him yesterday after he was dead—about three fourths of an hour after he was dead—it was about seven o'clock. I did not examine his wounds particularly. I helped to bring him home part of the way.

HOMER FRITZ.

JOHN MILLS, *sworn:*

I reside in Fairmount. My age is thirty years. My occupation is check weighman at Fairmount Coal Works. Previous to that I was mining coal. I was not present when this accident occurred. I saw John Sullivan before he died. I was there and helped to wash John Sullivan. I found him injured by a piece of flesh torn away from near his groin. His right leg was fractured between the knee and ankle. The left ankle was smashed or dislocated. I considered his wounds fatal. I thought the most fatal were in the bowels. This occurred on February 20, 1880. I was acquainted with Mr. Sullivan about twelve years.

JOHN MILLS.

JOHN CRESSWELL, *sworn:*

I reside in New Bethlehem, Clarion county, Pennsylvania. My age is forty-nine years past. I am a practicing physician. I have practiced medicine for about twenty four years. I am following the profession now. I was partially acquainted with John Sullivan. I was called to see Mr. John Sullivan on the 20th day of February, 1880, in the afternoon, about four o'clock—perhaps after four o'clock. He died as it was getting dark, near six o'clock, I think. I did call to see Mr. John Sullivan, and found him as follows: A fracture of the lower part of the right limb between ankle and the knee, and the left ankle dislocated, also rupture of the bowels, with laceration of the scrotum, so much so that the testicles were exposed. The nervous shock, with the injury received, were the causes of his death. There was a portion of the skin between the testieles and groin torn out.

JOHN CRESSWELL, *M. D.*

THE VERDICT.

COMMONWEALTH OF PENNSYLVANIA, }
County of Clarion, } *ss:*

An inquisition indented and taken at Fairmount city, in the county of

Clarion, the 21st day of February, 1880, before me. David Mohney, (justice of the peace,) acting coroner of the county aforesaid, upon the view of the body of John Sullivan, junior, then and there lying dead, upon the oaths of J. L. Cribbs, Charles Priester, Alexander Croyle, H. W. Moore, James Wood, and John Baker, good and lawful men of the county aforesaid, who, being duly sworn to inquire on the part of the Commonwealth, when, where, how, and after what manner the said John Sullivan, junior, came to his death, do say, upon their oaths, that the said John Sullivan, junior, came to his death on the 20th day of February, 1880, by injuries received by a rock falling on him accidentally in the coal mine No. 1, belonging to Fairmount Coal Company, in the township of Red Bank, county and State aforesaid.

DAVID MOHNEY,
Justice of the Peace, acting Coroner.
J. L. CRIBBS, *Foreman*,
CHARLES PRIESTER,
A. CROYLE,
H. W. MOORE,
JAMES WOOD,
JOHN BAKER,
Jurors.

There were three or four more witnesses examined in the above case, but owing to their testimonies being of the same nature and similar in all respects to that given above, I thought proper to not publish it all.

S. DIESCHER'S COAL-WASHING MACHINE.

The machine represented in the accompanying design, is of a capacity to supply a plant of fifty bee-hive coke ovens. It comprises two compartments, two plungers, and two screens. The planks forming the box are four inches thick, tongued and grooved, and bolted to the cast-iron frames in a manner as to form a very rigid structure.

The screens are of brass wire, four feet square, and bolted to cast-iron brackets.

The plungers are of cast-iron, and operated by eccentrics and rods.

As seen from the drawings, the plungers are corrugated, and the depressions thereof are provided with small holes, through which the fine slate, &c., that drops through the openings between the wires of the screens are discharged into the box below.

The slate-traps are placed on top of the screens, close to the dam, and consist of oblong cast-iron boxes, with side openings, and gates to regulate them. These gates are adjusted by means of hand-wheel and screw.

The water enters the machine between the plunger and screen. The plungers are guided in cast-iron boxes, surrounding the lugs, to which the eccentric rods are fastened. The lining around the plungers is of wood, and of a width so as to leave a clear space of three eighths of an inch between

the plunger and itself. Thus no friction, respectively no wear occurs there.

The partition that separates the two compartments, does not reach down below the lining, but leaves a clear opening of about five square feet, through which the water of both compartments may communicate freely. In consequence of this, and also because the eccentrics of the two plungers are fastened to the shaft, so as to move the plungers in opposite directions. The water below oscillates right and left, according to as either one or the other of the plungers rises. This avoids the strain in the machine, that otherwise would be caused by either pressure or suction.

The volume of water below the plungers remains the same, practically, since that portion of water that passes downward through the openings of the rising plunger will, at the same time and by the same reason, pass upward through the openings in the descending plunger, and vice versa. Only that volume of water will be forced through the screen, where the plunger rises, that has entered that compartment during the time of one revolution of the eccentric shaft. From this it will be seen that it does no harm to the machine whether the supply of water enters freely or is shut off entirely.

Before starting this machine, the water has to be turned on, and when it rises so high as to overflow at the dam, the machine is set in motion and fed with coal.

Now, whenever a plunger rises, a volume of water will be forced through the screen, lifting the material above this latter; and when a plunger sinks the material will drop. But, since this material consists of particles of different weights, it is plain that those offering less resistance to the water will rise higher than others, and in dropping these latter will, by the same reason, drop faster, thus lower than the former. And as this process is repeated with every following revolution of the eccentrics, the coal, while it travels toward the dam, is constantly exposed to the action of the water, and will be separated when it arrives there, and be discharged; while the impurities lie below in close contact with the screen. After the space above the screen is once filled to the height of the dam, coal and water will be discharged with every upward stroke of a plunger, and in the ratio as it enters the machine.

When this operation is continued for about ten or fifteen minutes, the gates of the slate trap are to be raised about an inch high, and the slate, &c., will immediately enter the trap and pass into the slate box in front. Now the man in charge of the machine examines the waste, and if it contains any coal, the gates have to be lowered until the waste that enters the trap is free from coal. In this position the gates are to be left as long as the supply of coal does not decrease. Should this occur the gates must be lowered, as otherwise the waste will pass through, and coal will follow; hence the gates are to be adjusted according to the amount of coal delivered upon the screen, and also in proportion to the amount of waste contained in the material that is to be washed.

By reason of the plunger being of the same size and shape as the screen, and right below this latter, the action of the water is uniform all over the screen, contrary to any other plunger machine in existence.

The slate box in front of each compartment holds about six bushels of waste, and is emptied whenever full, which occurs every twenty minutes to an hour, according to the proportion of impurities contained in the coal. The emptying of the slate box is effected by means of a valve and treadle, and takes but a few seconds, during which the operation of the machine is continued. The fine sulphur, &c., from under the plungers is discharged through the drain valves at intervals of about thirty minutes by a similar valve, and in same manner as the waste. The fine material coming from the plungers comprises slate, sulphur, sand, &c., and is perfectly free from coal dust. No coal, however fine, can pass through the screen, because it can never penetrate the course of heavy material of all sizes of waste that forms a regular filter on the screen.

The waste discharged from the slate boxes is either carried away through a drain having a fall of about four feet in a hundred, or where—owing to want of elevation—such fall cannot be had, it is carried to a point most convenient, whence by means of a small elevator it is raised automatically into an elevated bin and in turn discharged into cars or barrows and hauled to a suitable dumping place.

The machine, as above described, is constructed of wood and iron. The wood work when worn out can be replaced by any skilled carpenter. The iron skeleton remains whole and sound. There are no valves or mechanisms of any kind inside of the machine that might get out of order or necessitate repairs. For better convenience each compartment is provided with a man-hole.

MINES ON LOW GRADE RAILROAD.

On this road and in this district there are several mines in Clarion and Jefferson counties. The seams of coal worked are the Kittanning and Freeport seams. The workable coal varies in thickness from three to seven feet in the different mines. Coal is shipped to the northern markets, and is used for steam, gas, coke, and other purposes. Coke is manufactured at Red Bank, Fairmount, and Reynoldsville. The Reynoldsville coke compares favorably with the Connellsville for furnace use, and according to those in the business it is preferable in some instances.

The system of mining is the same as that in use generally through the bituminous coal country, which is known as the room and pillar system. In some of the mines they adopted the double-heading plan for driving entries, and in others the single entry with break-throughs across room pillars. At the time of opening a mine the double-heading plan seems to be a more expensive plan of opening than the old plan of single entry; but after the mine is opened, the benefits of the double is reaped, and in the end it is found the cheapest. It saves a good deal of extra expense in labor and lumber in doors, brattices, stoppings, &c., besides affording a more

steady, more reliable, and a better ventilation, and one that will open air-passages that will continue from the time of opening to the closing of the mine, and can be used for intake and return, or two intakes, as the circumstances may demand.

Fairmount Mines.—Are three in number, and operated by the Fairmount Coal Company. Two of these mines (Nos. 1 and 2) are working in the Lower Freeport coal. No. 1 is nearly exhausted, and at present only mining about six hundred tons per month, for the use of railroad locomotives. No. 2 is a new mine, opened during the year. The openings were commenced in February, and commenced shipments in July. There is a new incline plane, on the improved plan, built to this mine, with double T iron track, with two separate drum wheels on top, one for each track, of nine feet diameter. Length of plane, five hundred and sixty feet. No. 4 Mine is opened in the Lower Kittanning coal seam. The coal is very irregular in thickness, and the bottom very uneven, pitching up and down, which makes it, at times, difficult for both mining and hauling. These mines are all worked on the room and pillar system, with air-shafts and openings to day-light for ventilation. They employ in and about the three mines over two hundred persons.

The Diamond Mine.—Located near Reynoldsville, Jefferson county, on the same railroad. Operated by the Diamond Gas Coal Company. This mine has been doing but very little during the year, having been closed since August until December, and in the meantime having changed hands. At present the mine is under the management of D. Nicholson. Mining boss, David Charles.

Hamilton Mine.—Located near Reynoldsville. Operated by the Hamilton Coal Company. In operation during the year one hundred and eighty-five days, mined over sixty thousand tons. Average number of persons employed (daily) inside and outside, seventy-five. For improving the ventilation, the furnace has been re-built during the year. Superintendent, M. Armstrong; mining boss, John Lowther.

Soldier Run Mine.—Located near Reynoldsville. Operated by Powers, Brown & Co. The works, inside and out, employ about eighty men. During the year there have been built and put in operation thirty-one coke ovens. The ventilation of the mine is produced by a furnace, and, at the time of my visit, they were making some inside improvements, with the view of shortening the distance of hauling. The superintendent of this mine is James A. Powers; mining boss, Richard Smith.

Pancoast and Washington Mines.—Situated on the north side of Sandy Lick creek, about four miles from Reynoldsville, in Winslow township, Jefferson county. The mines are connected under ground and ventilated by the same furnace. They are operated by Buffalo and eastern parties, under the management of J. C. Baker. Mining boss, Henry Williams.

Pancoast mine employs, inside and outside, about fifty persons and three mules, and Washington about thirty persons and three mules. Both mines

are drift openings, connected with Low Grade railroad by ineline planes. Been in operation during the year about two hundred and ninety days. The general conditions of both mines in good order.

MINES ON THE ALLEGHENY VALLEY RAILROAD.

CATFISH MINES.—These mines are loeated in Clarion eounty, and owned by the Pittsburgh Coal and Mining Company. This company owns and operates three mines, the eoal of which is taken to market over the Allegheny Valley railroad.

CATFISH MINE, No. 3, has been running for a number of years, and its workings at present are all pillar work, and for want of room only affording work to a few persons.

NEW CATFISH MINE, is a new mine, opened and equipped within the present year. The workings of this mine is still inereasing, and will soon be able to employ a large number of men. The main entry nearly on faee of coal, with cross entries on right and left. The present cross entries are driven to daylight. The superintendent of this mine, in reporting it says: "This entire mine was opened and equipped during the year 1880. Double track incline seven hundred and eighty feet long, double set of drums, double set of chutes and screens, runs two wagons at a time, and when mine is up to its full capaeity, will load forty ears of fifteen tons each per day, as easily, and with same force of outside labor as employed in operating tipples of the old style."

During 1880, there has been mined between eleven and twelve thousand tons of eoal, running about two thirds of the year, and employing between forty and fifty men. Mining boss, L. Rankin.

LOWER HILLVILLE.—This mine is operated by the Pittsburgh Coal and Mining Company. Superintendent, L. N. Singley. Mining boss, John Manley. Mine located on the Allegheny Valley railroad, in Clarion eounty. This mine has not been operated to its eapaeity during 1880. Average number of persons employed inside and outside, thirty-five. Number of days worked, two hundred and fifty-seven. Ventilation by natural means. There is a furnaee in this mine, but owing to the small number of men employed, it has not been much in use during the year.

MINERAL RIDGE MINE.—Operated by the Mineral Ridge Coal Company. Manager, C. W. H. Eike. Mining boss, Anthony Brown. Mine located in Clarion county, near West Monterey, on the Allegheny Valley railroad. This company owns between four and five hundred aeres of eoal. Average number of persons employed, ninety-three inside and outside in 1880. Number of days worked, two hundred and fifteen.

During the year they ballasted the bottom, and re-laid with new ties the main entry roads. Drove air and water eourse from the head of the workings to daylight. Drove five hundred yards of entry, re-built the drum-wheel and check house, and re-laid the incline plane with new material. The ventilation of this mine is produced by furnace. The distanee of haul-

ing under ground from sixteen to seventeen hundred yards. The mine extensive, and able to mine and handle large quantities of coal.

CHURCH HILL MINE.—Located in Clarion county, on the Allegheny Valley railroad, near West Monterey. Operated by the Church Hill Coal Company. Superintendent and mining-boss, George Horner. During the year the mine has been working two hundred and thirty-three days. The mine, up to the present, is not very extensive. The ventilation is produced by an up-cast air-shaft, with a stack on top. The main opening of the mine is a drift, with an outside road about three quarters of a mile long from the mouth to top of incline plane. The roads in the mine, at time of visit, were good. Entries laid with T rail, and in good condition.

BRADY'S BEND MINE.—Located near East Brady, on the Allegheny Valley railroad, in Brady township, Clarion county. Operated by the Brady's Bend Mining Company. Drift opening. The mine consists of one main entry on face of coal, with three cross-entries on, but with rooms on both sides. There has been, during the year, two air-courses driven to daylight, to improve the ventilation. Capacity of mine, reported at the close of the year, from one hundred and seventy-five to two hundred tons per day. Number of persons employed, fifty. Mining-boss, George Henry.

PINE RUN MINE.—Located between East Brady and Phillipsburg, in Brady township, Clarion county, and on the Allegheny Valley railroad. Operated by the Pine Run Coal Company. Superintendent, Thomas Mitchell. Inside-boss, William Gent. The mine operated by drifts, on the single entry plan, room and pillar system. There are two divisions, north and south side, and each side opened from daylight. The ventilation of each side separate, and on the south side assisted by fire at the bottom of up-east. The roads in the mine dry and in good condition. Capacity, from two hundred and fifty to three hundred tons per day.

RED BANK FURNACE MINE.—Operated by Reynolds & Co. The furnace is situated at Red Bank Junction, Allegheny Valley railroad, in Clarion county, and the coal mines are connected with the furnace by a narrow-gauge railroad, nearly two miles long, and an incline plane. The product of the mine, except a little used for house coal, is used entirely for furnace purposes. For many years the coal was coked as it came out of the mine, near the mouth of the pit, but since the commencement of the present blast the coal is taken to the bottom of the plane, near the furnace, and put through a process of cleaning, preparatory to coking. There is in use one of Dieseher's improved coal-crushing and washing machines, for the purpose of cleaning and separating the coal from its impurities, and thirty ovens, built on the bee-hive plan, to do the coking. The quality of the coke made at present is much better than the coke made in the old way in open "pits" on the ground, and the yield greater to the same weight of coal. The mine is operated by drift-opening. Employing at present, inside and outside, about forty persons. Number of days working in 1880,

only two hundred and fifteen, the furnace being in blast only a part of the year.

MINES ON PITTSBURGH, FORT WAYNE AND CHICAGO RAILROAD.

The mines in this district, on the Pittsburgh, Fort Wayne and Chicago Railroad, have done but very little for some years, and there are several mines standing idle, for some reason. Among those in operation are those located on a branch railroad, built from New Galilee. These lines are mining in the cannel coal and what is known under the name of Beaver Block.

MANSFIELD MINE.—This mine is a drift opening, in which there has been mined, in some parts of its workings, the Beaver Block and cannel coal. Its shipments amounted, during the last year, to about fifteen thousand tons. Average number of persons employed inside and outside, thirty. Number of days worked, two hundred and sixty. Mr. Mansfield contemplates building a new furnace of a larger capacity than the one in present use, which I expect will be done early in the spring. Mining boss, John Bolan.

BEAVER BLOCK MINE.—This mine is operated by James Sutherin. Employs from twenty-five to thirty persons. During the year this mine has been very irregular.

MINES IN BEAVER AND LAWRENCE COUNTIES, ON THE ERIE AND PITTSBURGH RAILROAD.

BAKER MINE.—Located in Beaver county. Operated by L. S. Hoyt, for Scott & Co. Drift opening thickness of coal, about thirty-six inches. Mine ventilated by furnace, which has been rebuilt during the year. Drainage by natural means. Number of persons employed, inside and outside, from eighty to one hundred, and eight mules employed to do the inside hauling. Number of days in operation, about two hundred and ten. Mine superintended by L. S. Hoyt. Mining boss, Christopher Haswell.

BEAVER MINE.—Located in Lawrence county, near Clinton station, Beaver county. Operated by Lee & Patterson. Mined in December, three thousand eight hundred and thirty-four tons. Mine ventilated by furnace 6x6, and drainage by steam pumps. Employing about one hundred and twenty persons, inside and outside. Number of mules for hauling purposes, sixteen. The coal is unloaded from the mine cars over chutes near the mouth of the bank and loaded into cars holding four tons, in which it is carried over a graded railroad four thousand feet long and loaded in cars on the Erie and Pittsburgh Railroad. The mine was in operation during the year about two hundred and forty-five days. Superintendent, W. W. Hamilton. Mining boss, Charles Price.

CLINTON MINE.—Operated by the Clinton Coal Company. Located in Lawrence county, near the Beaver mines, with its workings in the adjoining hill, and its coal conveyed over the same graded road. There are five openings to this mine, three of which are drift openings, and two shafts. At the bottom of one of these shafts there is a furnace used for ventilation. The drainage is produced by a deep drain to the outcrop. Amount of coal

mined in December, three thousand seven hundred and fifty-three tons. At the close of the year there were over a hundred persons employed in and about the mine. This mine is under the management of Charles Harmony. Mining boss, John Craig.

Welsh Bank.—Located between Clinton and Wampum. Operated by the Wampum Coal and Iron Company. The mine is a drift opening, with an incline plane and graded road to take the coal to the Erie and Pittsburgh railroad for shipments. At the time visited, the management of the mine was under the charge of Enoch Filer. Mining boss, William Maxwell. There are in all five openings to the mine, three of which are used for inlets and two for outlets. The seam of coal worked the same as that worked at the Beaver and Clinton mines. The ventilation is produced by furnace and drainage by natural means. Average number of persons employed inside and outside, eighty-eight. The mine is in operation during the year about one half time. Both the iron works and the mines are under the general management of Charles W. Bingham.

Davidson Mine.—Located in Lawrence county, near Wampum. Operated by W. B. Enos & Co. Drift opening mine, running very irregular during the year, employing an average number of fifty persons for about two hundred days. Mined in month of December eighteen hundred tons. The mine consists of one face entry with cross entries. There are five openings to daylight. On the mouth of one of the drifts there is a brick stack twenty-five feet high, with a small furnace near the bottom for ventilation. Superintendent, W. B. Enos. Mining boss, E. Cook.

Edenburg Mine.—Located in the Mahoning Valley, Lawrence county, on the P. Y. and A. railroad. Operated by the Mahoning Valley Iron Company. Drift opening. This mine has been put in operation for shipments during the present year. Since the present owners have possession, there has been a new air-shaft sunk which has greatly improved the ventilation. There is a two inch syphon pipe used for drainage purposes. The mine employs inside and outside about thirty persons and three mules. Was in operation during the year two hundred and fifty days. Coal mined in December, fifteen hundred tons. Assistant manager, C. K. Grute. Mining boss, James Warne.

MINES IN MERCER COUNTY.

Several of the mines in this county have not been doing as much during the year as was expected when the year commenced. In the block coal region a number of the mines were finished and the coal exhausted. The old shafts closed, and the drill set to work to try to find coal elsewhere.

The block or Sharon coal is valuable coal, and there has been millions of tons of it mined since it was first opened, but unless some new discoveries will prove successful it will soon be exhaused. Had this coal been co-extensive with the level at which it is found, there would be almost an inexhaustible quantity of it yet to be mined, but such is not the case as proved by the experience already had in mining, and confirmed by land-marks of

the abandoned mines which are left and designate the spots in the shape of refused heaps that had to be stored on the surface at the time of operating, and by the dilapidated dwelling-houses that are left tenantless, which had the order of things been different, had the coal proved where it was expected to be found, and continued in workable thickness when it was found, these places would be growing into towns and villages, and the mines giving employment to hundreds of persons, but such is not the case. I reported in my last report, in the list of new mines, a shaft newly sunk and the workings just opened, and in the present report it is worked out. There are others that could be mentioned of not much longer duration where there has been much capital expended with the expectation of having a good mine, but before the workings were fairly opened the owners were fully convinced that to spend more money would be entirely useless.

Where mining is contemplated in this seam, the first thing to be done is to search for the coal by boring, which often turns out to be very unreliable, as its quality is not assured, and often the thickness not correctly defined until after the operation of sinking has been completed and the vein developed through the labor of the miner.

The expense of sinking, procuring engine and boiler, with other machinery and material requisite to conduct the operations of mining successfully, is considerable. Whereas if the coal was accessible, like the seams of coal in many other parts of the coalfield, by means of drift, in place of shaft and slope openings, the risk would not be so great, and mining operations would not be attended with as many difficulties.

In sinking a shaft or slope, it is important that it should be located so that the coal be struck at its lowest level or bottom of the deepest swamp from which the underground workings are to be commenced, following the swamp or bottom of the trough, if possible. This is rendered necessary for the purpose of drainage and haulage.

Owing to these troughs or swamps being irregular in their direction, and only defined as the mine progresses, the mining cannot be conducted on any systematic plan, such as can be followed where the seam is flat, or having a regular pitch, and where the seam is reliable.

The following mines were stopped during the year, the coal having been exhausted and the works finished:

Orangeville shaft, operated by the Morris Coal Company, stopped on the 28th day of July.

The Duncan shaft, only in operation one hundred and twenty-three days in 1880, until exhausted.

Hoffman slope only mined three thousand and fifty-eight tons in the year, and worked out in August.

Neshannock No. 2 and Bethel No. 2 were both finished during the year.

NEW MINES.

The Wheeler shaft, Lackawannock, Rankin, and Bethel No. 3. All shaft openings.

The Wheeler shaft is worked by water balance. The coal mined for the Wheeler Iron Company's works at West Middlesex, and hauled by teams from the top of the shaft to its destination.

The Lackawannock shaft was put down by the Pierce Coal Company, Limited. Water interfered greatly in the sinking of this shaft, and compelled the sinkers to surrender, but through the indomitable will of Mr. Walter Pierce and his co-partners, with the aid of powerful steam-pumps, they eventually conquered and completed the shaft into the coal which they are now opening out. They are also sinking a second opening shaft, 6′x8′, which, with luck, will soon be finished. The main shaft is two hundred and twenty-five feet deep, opened on the same general plan as other shafts in this county. They commenced shipping coal November 16th, and it is hoped that the workings will be a success, and that the field of coal that they have thus penetrated will prove profitable.

The Rankin shaft was put down by the firm of J. F. Filer & Co.. General Superintendent, Enoch Filer. The shaft is one hundred and twenty feet deep, and connected by rail, and commenced shipping coal in September. At time of visiting they were putting down a second opening shaft which would soon be finished.

Bethel No. 3, sunk by Curtis & Boyee, is a new shaft put down within the year, and at the time visited the workings were not very extensive, and only a few miners employed.

The mines that have been doing the most in this section during the year are the Wise and Hickory shafts and the Pacific Slope. These mines have been running the most of the year, and have mined a large quantity of coal.

The Bethels, Oakland, and Home, No. 2, running only part time and very irregular.

The Wise shaft has improved its ventilation by adopting one of the "Champion Ventilator" fans.

The Pardoe, Jackson, and Stoneboro mines in the eastern part of the county are working a seam of coal above the Sharon, located higher in the coal measure than the block coal, and called by some the Brookville seam. The coal is of different characteristics and not of the same quality as that of the block, and although rolly, yet it is more certain to prove in workable quantities after it is found and more reliable.

This seam is extensively mined by these three mines, and there are other new mines now in course of opening and getting ready for shipments, and from present indications this part of the county is destined to take the lead in this direction, and to have very extensive mines and large operations in mining carried on. The Pardoe and Jackson mines are both drift openings. The ventilation of the Pardoe mine is produced by a fan, and a locomotive used for hauling. The Jackson mine is ventilated by furnace.

Stoneboro is a slope opening, and there is another new slope sinking which will soon be ready, and when added to their present openings will double the capacity of the company for mining purposes. The ventilation of this mine is produced by a furnace. A new furnace being built within the present year, the old ones not having sufficient power to overcome the increased friction.

TABLE 1.—*Showing the location of Collieries in the Second Bituminous Mine District.*

Name of Colliery.	Name of Company.	Location—County.	Name of Superintendent.	Post Office Address.
Pardoe Mine,	Mercer Mining and Manufacturing Company,	Mercer,	F. H. Oliphant,	Pardoe Post Office, Mercer county.
Barnes Mine,	do. do. do.	Butler,	do.	do. do.
Jackson Mines,	Jackson Coal Company,	Mercer,	J. P. Kerr,	Jackson Center, Mercer county.
Red Bank Furnace Mine,	Reynolds & Co.,	Clarion,	David Reynolds,	Red Bank Furnace, Clarion county.
Sligo Branch Mine,	Sligo Branch Coal Company,	do.	Frank Abrams,	Reimersburg, Clarion county.
Stewardson Furnace Mine,	F. B. & A. Laughlin,	Armstrong,	James Patrick,	Mahoning, Armstrong county.
Mineral Ridge Mine,	Mineral Ridge Coal Company,	Clarion,	C. W. H. Elke,	West Monterey, Clarion county.
Reimerton Coal Mines,	Sharps & Abrams,	Armstrong,	F. Abrams,	Reimerton, Armstrong county.
Fairmount, No 1,	Fairmount Coal Company,	Clarion,	J. M. Brinker,	Fairmount City, Clarion county.
Fairmount, No. 2,	do. do.	do.	do.	do. do.
Fairmount, No. 4,	do. do.	do.	do.	do. do.
Red Bank Mine,	do. do.	do.	do.	do. do.
Mahoning Furnace Mine,	Wesley, Wilson & Co.,	Armstrong,	Wesley Wilson,	Mahoning Furnace, Armstrong co.
Home Bank, No. 2,	Buhl, Westerman & Co.,	do.	D. Adams,	Sharon, Mercer county.
Oakland, No. 2,	Oakland Coal Company,	Mercer,	Walter Pierce,	Sharpsville, Mercer county.
Catfish, No. 3,	Pittsburgh Coal and Mining Company,	do.	L. N. Singley,	Catfish, Clarion county.
Catfish New Mine,	do. do.	Clarion,	do.	do. do.
Lower Hillville,	do. do.	do.	do.	do. do.
Baker Bank,	Scott & Co.,	do.	L. S. Hoyt,	Rock Point, Beaver county.
Davidson Mine,	W. B. Enos & Co.,	Beaver,	W. B. Enos,	Wampum, Lawrence county.
Hardscrable Mine,	Brady's Bend Coal Company,	Lawrence,	C. F. Hartwell,	Oil City, Venango county.
Edenburg Mine,	Edenburg Coal Company,	Clarion,	C. K. Grute,	Edenburg, Lawrence county.
Maple Grove Mine,	S. P. McCalmont,	Lawrence,	Charles A. Kinney,	Raymilton, Venango county.
Soldier Run Mine,	Powers, Brown & Co.,	Venango,	James Powers,	Reynoldsville, Jefferson county.
Mansfield Mine,	J. F. Mansfield,	Jefferson,	I. F. Mansfield,	Cannelton, Beaver county.
Bethel, No. 1,	Curtis & Boyce,	Beaver,	John Phythyon,	Wheeler Post Office, Mercer county.
Bethel, No. 3,	do.	Mercer,	do.	do. do. do.
Pancoast Mine,	Reynoldsville Coal Company,	do.	J. C Baker,	Pancoast Post Office, Jefferson co.
Washington Mine,	F. Williams,	Jefferson,	do.	do. do. do.
Coal Center Mine,	Neshannock Coal Company,	do.	John Bell,	New Castle, Lawrence county.
Etna and Vesuvius Mine,	P. Y. Hite,	Lawrence,	P. Y. Hite,	Hite, Allegheny county.
Belview Mine,	do.	Allegheny,	do.	do.
Pacific Slope,	Dunham, Roberts & Co.,	do.	W. B. Dunham,	Sharon, Mercer county.
Hamilton Mine,	Hamilton Coal Company,	Mercer,	M. Armstrong,	Reynoldsvile, Jefferson county.
Wise Shaft,	Snyder Coal Company,	Jefferson,	Enoch Filer,	Sharon, Mercer county.
Natroua Mine,	Pennsylvania Salt Manufacturing Company,	Mercer,	W. H. Richards,	Natrona, Allegheny county.
Davidson, Beaver Falls,	A. Davidson,	Allegheny,	Addison Davidson,	Beaver Falls, Beaver county.
Kittanning Mine,	Kittanning Iron Company, (Limited,)	Beaver,	Henry A. Colwell,	Kittanning, Armstrong county.
Beaver Mine,	Lee & Patterson,	Armstrong,	W. W. Hamilton,	Rock Point, Beaver county.
Church Hill Mine,	Church Hill Coal Company,	Lawrence,	George Horner,	West Monterey, Clarion county.
New Bethlehem Mine,	Sandy Lick Coal Company,	Clarion,	George Mullinger,	New Bethlehem, Clarion county.
Clinton Mine,	Clinton Coal Company,	Armstrong,	Charles Harmony,	Rock Point, Beaver county.
Pine Run Mine,	Pine Run Coal and Mining Company.	Lawrence,	Thomas Mitchell,	East Brady, Clarion county.
Philadelphia Mine,	James Kennedy,	Clarion,	James Kennedy,	Oil City, Pa.
Rankin Mine,	John F. Filer & Co.,	Venango,	Enoch Filer,	Sharon, Mercer county.
Freeport Mine,	James O. Mealy,	Mercer,	James O. Mealy,	Freeport, Armstrong county.
		Armstrong,		

TABLE I —LOCATION OF COLLIERIES—*Continued.*

NAME OF COLLIERY.	Name of Company.	Location—County.	Name of Superintendent.	Post Office Address.
Joy Hill Mine,	Kettering & Dunham,	Mercer,	W. B. Dunham,	Sharon, Mercer county.
Burnett Mine,	Burnett Coal and Coke Company,	Butler,	A. Burnett,	Hilliard, Butler county.
Hickory Shaft,	Spearman & Co.,	Mercer,	Enoch Filer,	Sharon, Mercer county.
Welsh Bank,	Wampum Coal and Iron Company,	Lawrence,	Charles W. Bingham,	Wampum, Lawrence county.
Wheeler Shaft,	Wheeler Iron Company,	West Middlesex, Lawrence,	M. W. Jenkin,	West Middlesex, Mercer county.
Acbarr Mine,	Acbarr Mining Company, (Limited,)	Butler,	A. Burnett,	Hilliard, Butler county.
Stoneboro' Mine,	Mercer Iron and Coal Company,	Mercer,	Benjamin Esgar,	Stoneboro', Mercer county.
Beaver Block Mine,	James Sutherin,	Beaver,	James Sutherin,	East Palestine, Ohio.
Laird Mine,	Thomas Laird,	Mercer,	T. Laird,	Wheatland, Mercer county.
McElhenney Mine,	Tiel & McDowell,	Venango,		Franklin, Venango county.
Carbon Run Mine,	Carbon Coal Company,	Mercer,	Adam Persch, Jr.,	Neshannock, Mercer county.
Wallace Shafts,	Sharpless & Kincaid,	Lawrence,	M. C. Sharpless,	New Castle, Lawrence county.
Diamond Mine,	Diamond Coal Company,	Jefferson,	John Goodwell,	Reynoldsville, Jefferson county.
Hoffman Slope,	Hoffman & Co.,	Mercer,	Peter Hoffman,	Sharon, Mercer county.
Duncan Shaft,	Duncan Coal Company,	Mercer,	J. P. Morris,	Orangeville, Ohio.
Karns City Mine,	H. R. Fullerton,	Butler,	H. R. Fullerton,	Parker, Armstrong county.
Clarion Mine,	Clarion Coal Company,	Clarion,	W. W. Greenland,	Clarion, Clarion county.
Orangeville Shaft,	Morris Coal Company,	Mercer,	George Frack,	Orangeville, Ohio.
Neshannock Shaft,	J. Phillips & Co.,	Mercer,	Adam Persch, Jr.,	Neshannock, Mercer county.
Oak Hill Mine,	Filer & Co.,	Mercer,	John F. Filer,	Wheatland, Mercer county.
Turner Mine,	J. M. Turner,	Indiana,	J. M. Turner,	Blairsville, Indiana county.
Coburn Mine,	James H. Coburn,	Beaver,	J. H. Coburn,	Beaver Fall, Beaver county.
Egbert Mine,	Filer & Co.,	Mercer,	Thomas Milton,	Jackson Center, Mercer county.
Ormsby Mine,		Mercer,	L. M. Ormsby,	Jackson Center, Mercer county.
Cherry Mines,	Union Coke and Coal Company,	Butler,	George G. Stage,	Greenville, Mercer county.
Lackawannock Shaft,	Pierce Coal Company,	Mercer,	Walter Pierce,	Sharpsville, Mercer county.
Diamond Mine,	Elias Rodgers,	Jefferson,	D. Nicholson,	Reynoldsville, Jefferson county.
Clayton Mine,	James Clayton & Co.,	Beaver,	James Clayton,	Beaver Fall, Beaver county.
Butts Mine,	F. Butt,	Beaver,	F. Butt,	Enon Valley, Pa.

TABLE II.—*A statement showing characteristics, average number of employees, production, etc., of the respective collieries in the Second Bituminous Mine District, for the year ended December 31, 1881.*

NAME OF COLLIERY.	Character of Coal. (Bituminous or Semi-bituminous.)	Slope, Shaft, or Drift.	Number of pumps.	Number of engines.	Horse power.	Number of boilers.	No. of miners—men.	No. of miners—boys.	Other employees.	Total employees.	Number of mules inside.	Number of mules outside.	Number of locomotives.	Total production of coal in tons.
Acbarr,	Bituminous,	Slope,	1	1	20	1	23	2	6	31	1	.	. . .	2,819
Baker,	do.	Drift,	. .	. .	.	.	64	13	7	83	5	1	. . .	21,387
Barnes,	do.	Drift,	2	1	8	2	98	18	21	140	7	4	. .	66,059
Beaver,	do.	Drift,	2	. . .	. .	1	95	19	26	140	8	5	. .	34,550
Beaver Block,	do.	Drift,	. .	. .	.	.	37	5	7	49	3	1	. . .	15,766
Bethel, No. 2,	Bituminous, (block,)	Shaft,	2	1	35	2	30	12	2	45	1	2	. .	1,825
Bethel, No. 3,	do. do.	Shaft,	2	1	35	3	23	3	6	32	1	.	. .	498
Belleview,	do.	Drift,	1	1	10	1	45	2	7	54	5	.	. . .	25,371
Burnett,	do.	Drift,	1	1	8	1	31	4	6	41	1	2	. . .	4,586
Carbon Run,	do.	Drift,	. .	. .	.	.	23	2	5	30	1	1	. .	3,100
Catfish,	do.	Drift,	. .	. .	.	.	35	5	4	44	2	.	. . .	3,625
Catfish, No. 3,	do.	Drift,	. .	. .	.	.	21	3	2	26	1	.	. . .	4,209
Church Hill,	do.	Drift,	. .	. .	.	.	37	4	7	48	1	1	. .	7,692
Coal Centre,	do.	Shaft,	1	1	15	1	36	5	7	48	.	.	. . .	14,625
Clinton,	do.	Drift,	. .	. .	.	.	62	9	16	87	7	7	. .	22,349
Davidson, (Beaver Falls,)	do.	Drift,	. .	. .	.	.	9	. .	3	12	1	1	. .	2,637
Davidson, (Wampum,)	do.	Drift,	. .	. .	.	.	46	11	9	66	4	2	2	4,650
Diamond,	do.	Drift,	. .	. .	.	.	23	2	. .	25	4	.	. .	1,220
Duncan,	do. (block,)	Shaft,	1	1	25	1	32	5	7	44	2	3	. .	5,950
Edenburg,	do.	Drift,	. .	. .	.	.	27	2	9	38	1	1	. .	9,806
Etna and Vesuvius,	do.	Drift,	1	1	10	1	73	4	13	90	10	. .	. . .	49,169
Fairmount, Nos. 1, 2, and 4,	do.	Drift,	. .	. .	.	.	119	13	26	158	12	5	. . .	60,946
Hamilton,	do.	Drift,	. .	. .	.	.	61	6	12	79	4	2	. .	57,711
Hardscrable,	do.	Drift,	. .	. .	.	.	39	6	7	52	2	. .	. .	13,890
Hickory,	do. (block,)	Shaft,	3	1	20	4	70	16	23	109	9	.	. .	21,480
Hoffman,	do. do.	Slope,	2	. .	.	1	7	2	6	15	2	2	.	2,220
Home, No. 2,	do. do.	Shaft,	1	1	25	2	38	9	7	54	2	. .	.	13,464
Jackson,	do.	Drift,	. .	. .	.	.	30	4	4	41	3	2	. . .	15,798
Joy Hill,	do.	Drift,	. .	. .	.	.	17	3	5	25	3	.	. .	.
Kittanning,	do.	Drift,	. .	. .	.	.	4	6	6	83	4	4	. .	4,452
Lackawannock,	do. (block,)	Shaft,	4	1	40	6	38	3	13	54	2	. .	. .	2,100
Lower Hillville,	do.	Drift,	. .	. .	.	.	27	3	3	33	3	. .	. . .	7,619
Mahoning Furnace,	do,	Drift,	. .	. .	.	.	27	1	3	31	2	1	. . .	9,222
Mansfield,	do. (cannel,)	Drift,	. .	. .	.	.	26	1	3	30	2	1	. . .	15,630

TABLE II.—A STATEMENT SHOWING CHARACTERISTICS, PRODUCTION, &C.—*Continued.*

NAME OF COLLIERY.	Character of Coal. (Bituminous or Semi-bituminous,)	Slope, Shaft, or Drift.	Number of pumps.	Number of engines.	Horse power.	Number of boilers.	No. of miners—men.	No. of miners—boys.	Other employees.	Total employees.	Number of mules inside.	Number of mules outside.	Number of locomotives.	Total production of coal in tons.
Maple Grove,	Bituminous,	Drift,	..	..	...	..	31	2	15	48	3	2	1	11,868
Mineral Ridge,	do.	Drift,	..	..	...	..	60	10	12	82	5	1	.	29,095
Natrona,	do.	Drift,	1	1	20	1	39	4	13	56	11	1		34,997
Neshannock, No. 2,	do. (block,)	Shaft,	1	1	20	4	38	4	7	49	1	...	...	2,960
New Bethlehem,	do.	Drift,	..	..		.	24	2	2	28	1	1		
New Catfish,	do.	Drift,	..	..	...	..	40	6	3	49	3	..	...	9,442
Oakland, No. 3,	do. (block,)	Shaft,	3	1		4	28	3	8	39	2	...	...	8,123
Orangeville,	do. do.	Shaft,	2	2	45	2	21	15	18	54	2	4	...	4,680
Pacific,	do. do.	Slope,	3	1	40	2	44	8	23	75	4	4	...	18,646
Pancoast,	do.	Drift,	.	.		.	30	8	9	47	3	..	...	31,895
Pardoe,	do.	Drift,	2	1	30	1	117	19	29	165	7	3	..	60,996
Philadelphia,	do.	Drift,	..	..	.	..	15	4	3	22	2	..	..	4,338
Pine Run,	do.	Drift,	..	.		.	65	10	11	86	3	2	...	28 312
Rankin,	do. (block,)	Shaft,	2	1	50	3	38	8	10	56	2	..	...	6,910
Red Bank,	do.	Drift,	..	..	.	..	27	2	2	31	1	1		
Red Bank Furnace,	do.	Drift,	..	..	.	..	31	9	9	49	4	3	..	10,623
Rimerton,	do.	Drift,	..	..	.	..	21	2	6	29	1	1	...	4,550
Sligo,	do.	Drift,	..	..	.	..	40	1	11	52	4	2	...	8,291
Soldier Run,	do.	Drift,	..	..	.	..	58	3	13	74	5		...	36,200
Stewardson Furnace,	do.	Drift,	..	..	.	..	15	8	16	39	6	6	...	15,748
Stoneboro',	do.	Slope,	..	1	75	1	146	22	21	189	12	..	..	59,180
Washington,	do.	Drift,	..	..	.	..	25	3	7	33	3		..	27,129
Welsh Bank,	do.	Drift,	..	.	.	..	90	4	23	87	6	3	..	16,956
Wheeler,	do. (block,)	Shaft,	1			2	32	2	9	43	2	.	..	2,400
Wise,	do. do.	Shaft,	2	1	40	5	71	5	0	82	6	.	.	36,300
Total,			41	22	571	52	2,530	367	577	3,471	2 6	8:	3	986,394

TABLE III.—*A statement showing the method of ventilation, amount of air discharged, number of openings and headings, and size of inlets and outlets in the respective collieries of the Second Bituminous Mine District.*

NAME OF COLLIERY.	How ventilated.	Diameter of fan in feet.	Size of furnace.	Amount of air discharged per minute.	Number of openings.	Number of headings.	Inlet—size of square feet.	Outlet—size of square feet.
Acbarr,	Furnace,			10,478	2	4	42	30
Barnes,	Exhaust steam,			14,560	14	3	6—23	8—23¾
Beaver,	Furnace,		6′ x6′	14,000	4	5	36	2—20
Belleview,	Exhaust steam,			13,723	2	3	46	39
Burnett,	Furnace,		6½′ x4′	4,200	2	2	42¼	20¼
Carbon,	Natural,			5,000	2	2	24	40
Catfish, No. 3,	do.			9,000	2	1	35	35
Church Hill,	do.			5,400	3	3	36	36
Clinton,	Furnace,		4′ x6′	27,000	4	2	42 30	30
Coal Centre.	Natural,			3,990	3		42	42
Davidson, (Beaver Falls)	Furnace,		4′ 7″ x5′ 7″	10,000	2	2	20	20
Davidson, (Wampum,)	do.			7,200	3	2	12 20	36
Edenburg,	do.			12,150	2	1	30¼	25
Etna and Versuvius,	do.		7′ x7′	26,700	3	4	39 51	60
Fairmount, No. 1,	Natural,			4,320	2	2	42	42
Fairmount, No. 2,	do.			18,000	2	6	42	42
Fairmount, No. 4,	do.			16,000	3	3	40	40
Hamilton,	Furnace,			11,400	4	4	50	46
Hardscrable,	Natural,			6,300	4	3	39	40
Hickory Shaft,	Exhaust steam,			12,000	2	4	20 20	30 30
Home, No. 2,	do.			7,177⅛		2	49½	49¼
Jackson,	Furnace,		5′ x5′	10,560	3	3	30	30
Joy Hill,	do.		3′ x3′	6,930	2	1	27½	20
Kittanning,	Natural,			7,100	3	2	4½′ x6½′ 4′ x6′	5½′ x6½′
Lackawannock Shaft,	Exhaust steam,			2,325	1	5	5′ x5½′	6x3½ 6x3½
Lower Hillville,	Furn. & natural,			8,400	3	1	45	42
Mahoning Furnace,	Natural,			5,400	2		72	36
Mansfield,	Fan & furnace,	3		5,775	2	1	7′ x5¼′	45½
Maple Grove,	Furnace,		5′ x6′	12,360	4	3	30	30
Mineral Ridge,	do.			12,500	4	3	3—36	25
Natrona,	Natural,			11,700	3	6	52	75
New Catfish,	do.			7,560	3	3	45	36
Oakland, No. 3,	Exhaust steam,			4,4 8		1	38½	18½
Pacific Slope,	Furnace,			9,500	3	3	36	25
Pancoast,	do.		4′ x4′	5,000	3	6	42	45
Pardoe,	Fan.	8		23,000	3	3	50	2—30
Philadelphia,	Furnace,		5	2,825	3	2	20	27½
Pine Run,	do.			6,700	4	6	42 42	35 20
Rankin,	Exhaust steam,			6,840	2	1	42	35
Red Bank Furnace,	Natural,			6,778	4	2	34 34	25 27
Soldiers' Run,	Furnace,		3⅛′ x6′	14,600	3	3	49	35
Stewardson Furnace,	Natural,			4,200	3	1	24	20
Stoneboro',	Furnace,		7′ x6⅛′	29,700	4	4	32 16 24	54
Washington,	do.		4′ x4′	5,000	3	5	42	45
Welch Mine,	do.		3′ x4′	14,040	4	3	42 15 36	36
Wheeler Shaft,	Exhaust steam,			8,000	2	3	112,	35
Wise Shaft,	Fan,	4		12,540	2	2	42	33

TABLE IV.—*Showing an average monthly statement of the ventilation of the respective collieries in the Second bituminous mine district during the year 1880.*

NAME OF COLLIERY.	JANUARY.						FEBRUARY.						MARCH.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Baker Bank,	250	9,000	235	4,050	300	9,750												
Barnes,	100	3,000	200	6,000	300	9,000	200	6,000	200	6,000	100	3,000	100	3,000	120	3,600	118	5,400
	200	6,000					100	2,000			300	9,000	100	1,600			220	4,400
Barnes,	150	3,000	180	5,400	180	5,400	200	3,200	100	3,000	80	2,700	200	6,000	130	3,900	140	4,200
Beaver,	70	1,400	200	6,000	200	6,000	100	2,000			80	2,880	100	2,000	180	3,600	120	1,930
	225	7,875	300	6,300	650	13,000												
Belleview,			200	8,400														
							201	7,457	47	2,350	289	17,051	213	7,801	92	6,440	270	15,930
							132	5,940	71	4,970			118	5,300	71	3,550		
Burnett,									70	4,620					61	6,026		
Carbon,							105	4,410	103	4,326	205	4,100						
Church Hill,	200	4,000	235	3,760	90	3,600	100	4,400	100	3,850	190	3,800						
Clinton,													159	5,400	50	1,800	150	5,400
	114	4,620	200	2,400	349	10,200	120	5,040	200	2,800	400	12,000						
Coal Center,	110	4,620	240	2,400			110	3,300	180	3,240								
Davidson, (Beaver Falls,)	80	3,360	85	2,040	80	3,360	90	3,780	85	2,040	90	3,780	85	3,570	75		85	3,570
Diamond,	150	4,800	187	5,525	500	10,000							187	5,984	150	4,500	375	7,500
	80	3,920					75	3,675	65	1,950								
Duncan Shaft,		3,500		3,000		3,500	85	4,675	86	3,010	130	4,550	75	4,125	100	3,500	130	4,550
Etna and Vesuvius,							233	13,934	147	7,707	503	31,180	251	12,801	270	13,500	458	27,480
							290	4,020	555	4,995			270	10,269	318	14,628		
Fairmount, No. 1,	300	10,800	200	7,200	200	7,200	300	10,800	214	7,704	200	7,200						
									165	5,940	214	7,704						
Fairmount, No. 4,	126	6,048	126	6,048	126	6,048	150	7,200	125	5,000	125	4,500						
Hamilton,	80	4,000	150	6,000	200	3,200	160	7,680	130	5,200	350	10,500	140	6,720	120	4,800	280	8,400
Hamilton,	200	10,000	200	8,000	400	12,000	40	1,920			150	2,900	30	1,440			120	1,920
Hardscrable,													90		25		80	
Hickory Shaft,		10,500		10,000		10,500								11,600		10,500		11,500
Hoffman,							100	2,500	133	2,128	133	1,596	110	2,750	125	2,000	130	1,560

Home, No. 2,	120	5,940	270	5,940	125	5,625	. . .	. .	. . .	. . . .	. . .	. . .	140	6,930	210	5,880	145	6,225
Jackson,	375	11,100	390	7,800	410	12,050	351	10,530	4 0	8,200	480	12,000	370	11,100	400	8,000	444	11,100
Mansfield,	120	4,620	7.0	3,791	110	5,005	100	3,850	700	3,791	100	4,500	1:0	4,235	6'0	3.250	110	5 005
Maple Grove,	340	8, .60	40	. . .	4 0	10 025	219	5,256	180	2,160	403	10,075	251	6,021	150	4,500	490	12.250
			53						1.7	3.840					120	3,600		
Mineral Ridge,	. .	. . . .		. .	. .	. .	150	7,350	3'0	14,7'0	500	12,500	200	7.000	5'0	4,900	400	10,000
							2 0	7,000	75	2,625			100	3,500	120	4,2'0		
Natrona,	60	6.480	. . .		70	5,250	160	6,480	. . .		62	4,650	140	15,120	. . .	. . . .	100	7,500
Neshannock,	95	5,700	130	5,200	135	5,400												
New Bethlehem,	80	3,'60	70	2.800	90	3.780	60	2,500	55	2,200	65	2,7'0	70	2,940	60	2,400	75	3,024
Oakland, No. 3,	120	3,600	155	2,790	200	3,532												
Orangeville,	260	4,160	145	3,480	245	3,920	280	4,480	185	3,700	240	3,840						
Pacific Slope,	230	8.280			310	9,300												
Pancoast,	100	4,200	70	3.150	177	7,965	120	5,040	70	3,150	187	8,415	100	4,200	60	3,150	138	6,210
			30	1,350	30	1,350			40	1 800	110	1,800			40	1,8'0	30	1,350
Pardoe,	250	7,500	280	8,400	420	2 ,000	380	9,120	460	12,000	400	20,0'0	200	6,000	3'0	9 000	410	20,500
Pardoe,	350	7,000	250	7,500	. .		300	9 000	250	7,500	. .		4.0	10,500	390	11,700		
Philadelphia,	.	. . .		. .	. .	. .	160	3,200			259	3,600	170	3,400	. . .	. . . .	270	3,240
Reimertown,	. . .						50	2,100	70	1,400	85	2,040	50	2,100	.		95	2,090
Sligo Branch,	170	6,120	150	6,080	300	7,5'0	175	6,900	150	3,600	350	8,750	180	7,480	150	3,000	390	9,750
									130	2,600					180	3,240		
Soldiers' Run,	150	7,350	200	8,000	400	14,000	175	8,575	125	5,000	400	14,000	150	7,350	2 0	8,000	400	14,000
									2.5	9,000								
Stewardson,	200	4,8'0	90	4,050	225	4,500	225	5,400	190	4,5'0	250	5,500	185	4,440	85	3,825	216	4,320
Stoneboro',	400	8,000	110	2,200	400	8,800	410	8,200	130	5,200	395	8,690	400	8,000	190	5,200	430	9,460
			110	1,930					100	2,0'0					70	1,400		
									16'	2 560								
Stoneboro',	230	5,750	130	2,600	385	6,545	210	5,250	150	2.700	395	6,715	200	5,000	100	2,000	380	6,460
			90	1,980					170	2,4'0					80	1,600		
Sutherin,											. .		95	3,420	90	3,240	100	3,600
Washington,	100	4,200	90	2.880	150	6,750	100	4,200	100	3,200	187	8,415	120	5,040	80	2,560	146	6,600
Welsh Bank,	200	8,400	300	16,8'0	375	13,500												
Welsh Bank,	180	6,480																
	210	3,150																
Wise Shaft,	210	8,820	150	3,675	. .		. .	. . .	. . .	. . . .	. .	. . . .	200	8,400	160	3,920		
Wise Shaft,	. . .	. . .	150	6,300	410	9,845	. . .	. . .	. .	. . . .	. .	. . . .	. .	. .	150	6,3'0	490	9,800

TABLE IV.—VENTILATION OF COLLIERIES—*Continued.*

NAME OF COLLIERY.	APRIL.						MAY.						JUNE.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Baker Bank,	...	...	..	...	...	...	200	7,200	175	3,150	300	9,750	150	5,400	175	3,150	300	9,750
Barnes,	100	2,000	120	3,600	...	...	220	6,600	...	...	200	6,000	100	3,000	100	3,000	100	3,000
	90	2,700					100	2,000			80	1,280	180	3 600	90	2,700	60	1,800
	100	1,600					120	2,400			200	4,000	120	1,920	120	2,400		
Barnes,	110	2,200	80	2,400	...	...	150	4,500	...	...	150	3,000	150	4,500	100	2,000	50	1,500
	100	3,000					100	1,600			80	1,600	70	1,400	200	3 200		
	110	2,200					80	1,600			70	1,750	90	1,800	150	4,500		
Beaver,	...	..	..	....	..	....	250	8,750	200	4,200	450	9,000	250	9,000	250	4,500	450	13,500
									200	4,200					150	2,700		
Belleview,	204	10,404	146	7,446	395	23,620	...	...	...	..	...	....	192	8,832	74	4,736	213	8,307
	232	8,816	166	7,236											71	3,692		
			68	3 740											95	4,628		
Catfish,	150	6,300	150	6,300	2 0	8.400												
Church Hill,	150	5,460			150	5,400	100	3,600	150	5,400	150	5,400						
Clinton,	100	4,200	1 0	3,300	450	13,500												
	120	3,600	120	3 600														
Coal Center,	75	3.150	85	2,040	95	3,990	85	3,570	85	2,040	75	3 150	90	3,780			80	3,566
Davidson, (Beaver Falls,)	150	4,800	166	4,980	375	7,500	187	5,984	150	4,500	3 0	6,000	2 4	6,843	187	5,610	375	7,500
Edenburg,	...						..		..		.	....	85	2,592	75	3,000	120	2,970
Etna and Vesuvius,	177	6,449	72	3,528	265	15,635	.	..	.	..	.	..	165	10,325	87	4,785	3 3	18,780
	185	8,325	97	5,044									118	6,018	110	5,500		
			55	3,650											139	7,089		
Fairmount, No. 1,	240	14,400	..	..	250	15,000	200	2,000	.	..	270	16 200	3 0	10,800	.		222	6,660
	150	9,000	.	....	300	18,000												
Fairmount, No. 2,	.	...	..	.....	.		180	8,400	.	.	250	15,000	214	7,704		..	162	4,860
Fairmount, No. 4,							300	18,000			380	22,800	435	17,400			150	4,500
Hamilton,	110	4,400	..	....	180	5,400	90	4,320	60	2 400	2 0	6,000	90	4,320	60	2,400	180	5,400
	30	1,500			80	1,280	30	1,500	60	2.400	80	1,280						
									80	3,200								
Hamilton,	...	.....	...	.....	..	....	..	..	...	....		..	30	1,440	80	2,800	100	1 600

Hardscrable,	90	3,510	..	....	...	...	90	3,510	37	1,800	95	1,900	90	3,500						
									25	1,200	90	1,800								
Hickory Shaft,	...	12,000	.	11,500	...	12,500	.	12,500	..	11,500	.	12,500	.	12,000	..	11,000	..	12,000		
Hoffman,	115	2,875	115	1,840	125	1,500	100	2,500	80	1,280	100	1,200	90	2,250	90	1,440	90	1,080		
Home, No. 2,	110	5,445	195	5,460	120	5,400	120	5,940	300	5,775	125	5,625								
Jackson,	400	12,000	410	8,200	472	11,800	300	9,000	350	7,000	335	10,500	320	9,600	330	6,600	327	9,810		
Lower Hillville,	160	6,720	150	6,300	160	5,880														
	150	6,300	140	5,880	160	5,880														
Mansfield,	150	5,775	550	2,992	100	4,550	120	4,620	650	3,520	110	5,005	100	3,850	650	3,520	100	4,550		
Maple Grove,	200	4,800	90	2,700	435	10,875	179	4,276	61	1,830	457	11,425	160	6,720	98	2,940	379	11,370		
			180	5,400					152	4,560					70	2,520				
Mineral Ridge,	150	5,250	125	4,375	350	8,750														
	120	4,200	150	5,250																
Natrona,	100	10,800			130	9,750	71	7,668	..	....	71	5,325	85	9,180	..	...	100	7,500		
Neshannock,	87	5,220	165	4,950	130	5,200														
New Bethlehem,	70	2,940	65	2,600	75	3,150	50	2,100	50	2,000	50	2,100	85	3,570	60	2,400	90	3,780		
Oakland, No. 3,	60	2,299	140	2,940	180	3,312														
Orangeville,			...	....			165	3,960	140	2,800	180	2,880	190	3,800	110	2,800	180	3,600		
Pacific Slope,	340	8,160	..	....	170	14,100							290	12,180	.	.	410	12,300		
Pancoast,	130	5,460	50	2,250	138	6,210	130	5,460	100	4,500	242	10,880	120	5,040	90	4,050	230	10,125		
			30	1,350	30	1,350														
Pardoe,	470	14,100	200	6,000	450	22,500	400	12,000	420	12,600	450	23,000	410	20,500	160	4,800	500	15,000		
Pardoe,	170	5,100	180	5,400	.	....	320	6,400	220	6,600		....	.	...	90	2,700	220	4,400		
															50	1,500				
Philadelphia,	180	3,600	..	..	290	3,370	190	3,800	90	1,080	290	3,120								
Pine Run,	140	5,880	60	2,520	135	5,670	115	6,090	70	2,940	140	5,880								
	135	5,670	60	2,520	90	3,780	140	5,880	70	2,940	90	3,780								
Red Bank Furnace,	.	.	.	.	.	.	.	..	..	.	..	...	94	3,196	...	....	100	2,500		
	...	.	..	...	.	.	...	.	.	...	.	....	85	2,890	...	....	76	2,052		
	...	.	.	.	.	.	..	....	.	...	.	....	60	960	...	....	61	976		
Reimertown,	150	2,200	75	1,500	110	2,200														
Sligo Branch,	210	7,560	100	3,400	360	9,000	270	7,200	100	2,400	310	8,500								
			150	3,150					140	2,900										
Soldier's Run,	150	7,350	175	7,000	400	14,000	100	4,980	125	5,000	300	10,500	150	7,350	200	8,000	400	14,000		
Stewardson,	80	4,320	80	3,600	192	3,840	159	3,600	80	3,600	189	3,600	200	4,800	90	4,050	225	4,500		
Stoneboro',	400	8,000	100	2,000	390	8,580	410	8,200	110	2,200	400	8,800	380	7,600	175	3,500	390	8,580		
			140	2,240					170	2,700					140	2,520				
Stoneboro',	170	3,859	150	3,000	380	6,460	220	5,000	150	2,700	370	6,350	195	4,875	140	2,520	340	5,730		
			130	2,600					180	3,600					200	4,000				
Sutherin,	100	3,000	95	3,420	110	3,960														
Washington,	160	4,200	110	4,620	146	6,660	130	5,460	110	4,260	242	10,890	130	5,460	100	4,500	230	10,125		
Welsh Bank,	250	9,000	275	15,400	380	13,680	230	9,660	275	15,400	370	13,320	235	9,870			330	14,040		
Welsh Bank,	200	3,150	.	.	.	..	220	3,300	.	..	.	.	220	3,300	280	15,680	.	..		
	230	9,660					250	9,000	...	...	..	.	245	8,820						
Wise Shaft,	180	7,560	140	3,430	410	10,045	..	...	...	....	..	...	170	7,100	150	3,675	350	8,575		
			145	6,090																
Wise Shaft,	..		....		..	...	...	.....	...	...		...	..	....	145	6,090				

TABLE IV.—VENTILATION OF COLLIERIES—*Continued.*

NAME OF COLLIERY.	JULY.						AUGUST.						SEPTEMBER.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Acharr,							100	5,600	100	4,800	100	4,800	240	9,600			330	9,900
Baker Bank,	250	9,000	200	3,600	300	12,600	200	7,200	200	5,400	375	15,750	250	9,000	220	5,940	325	13,650
Barnes,	100	3,000			200	6,000	140	4,200	180	5,400	90	2,700	200	4,000	100	3,000	80	2,400
	80	1,280			90	1,800	110	3,000	100	3,000	200	4,000	100	3,000			70	1,400
Barnes,	100	2,000			100	1,600	200	2,800			120	1,920	180	2,880			150	2,400
	200	5,000			100	2,000	190	2,930	80	1,600	90	1,800	120	1,440	80	2,400	150	3,000
	140	1,500			80	2,400	150	3,000	90	2,700	100	3,000	120	3,600	70	2,100	90	2,700
Beaver,	250	9,000	150	5,400	550	11,000	300	10,800	150	2,700	500	10,000	300	10,800	200	3,600	550	11,000
			150	2,700					200	3,600					250	4,500		
Beaver,			200	3,600					300	5,400					200	3,600		
			275	4,950					250	4,500					200	3,600		
									250	9,000					250	9,000		
Belleview,	221	10,168	73	4,682	260	10,140	198	9,108	58	3,248	198	7,722	230	10,580	66	3,696	308	12,232
Belleview,			85	4,420					76	3,496					101	4,646		
			107	5,243					80	4,160					104	5,408		
Bethel, No. 3,							225	4,500	205	4,305	250	4,500						
Burnett,	95	3,990	75	3,300	130	3,900	95	3,990	75	3,300	130	3,900	100	4,200	67	1,800	198	4,038
Catfish, No. 3,	150	6,300	180	6,300	175	6,125	125	4,687	140	4,900	200	7,000	150	5,250			150	5,250
Church Hill,							150	5,400	150	5,400	140	5,040	150	5,400	50	1,800	150	5,400
															50	1,800		
Clinton,	100	3,850					110	4,620	120	3,600	1,000	30,000	120	5,040	130	3,900	400	12,000
									130	3,900			120	3,600	130	3,900		
Coal Centre,	80	2,360			85	3,570	75	3,150			90	3,780	80	3,360	75	1,800	85	3,570
Davidson, (Beaver Falls,)	214	6,850	187	5,610	375	7,500	187	5,984	166	5,000	375	7,500	214	6,848	166	5,375	375	7,500
Edenburg,	100	3,025	75	3,000	120	2,970	87	4,730	75	3,000	150	3,712	75	2,268	75	3,000	120	2,970
Etna and Vesuvius,	289	11,271	95	5,225	334	29,040	119	6,669	81	4,455	386	23,160	110	5,610	97	5,335	415	21,900
			150	7,900					186	9,672					134	6,298		
Etna and Vesuvius,	110	5,610	163	8,313			125	6,675	167	8,684			38	12,402	202	8,484		
			388	19,080											357	21,420		
Fairmount, No. 1,	120	4,320	72	2,520	105	2,080	60	2,520	80	3,360			60	2,520			60	1,500

Fairmount, No. 2,	100	4,800	..	..	...	..	100	4,200	80	3,360	...	...	..	....	100	4,200				
Fairmount, No. 4,	...	...	..	...	85	4,320	120	3,600	100	3,500										
Hamilton,	120	6,000	80	3,200	200	6,000	80	4,000	100	4,000	250	7,500	110	5,500	60	2,400	220	6,600		
	50	2,700			100	1,600	40	2,000	100	4,800	100	1,600	50	2,500			100	1,600		
Hardscrabie,	90	3,510	75	3,600	..	..	90	3,765	100	4,800	...	...	100	3,900	75	3,600				
Hickory Shaft,	...	11,500	..	10,500	...	11,500	...	12,000	...	11,000	...	12,000	.	11,500	...	10,500	.	11,600		
Home, No. 2,	...	....	..	..	...	..	..	..	..	..	..	..	110	5,445	260	4,550	105	5,197		
Jackson,	310	9,300	250	6,000	360	10,800	305	9,150	270	6,480	300	9,000	252	10,560	300	7,200	360	10,800		
Lower Hillville,	150	6,750	130	5,460	175	7,350	150	6,750	130	5,460	175	7,350	150	6,750	...	..	200	8,400		
Mansfield,	100	3,850	650	3,520	100	4,550	110	4,235	625	3,385	100	4,550	100	3,850	500	3,000	100	3,859		
Maple Grove,	188	7,796	107	3,210	413	12,090	200	8,400	187	5,610	413	12,390	245	7,350	82	2,460	399	11,970		
															140	4,200				
Mineral Ridge,	75	3,675	75	2,625	400	10,000	100	4,900	120	4,200	500	12,500	100	4,900	100	3,500	350	8,750		
			100	3,500																
Mineral Ridge,	100	3,500	120	4,200	..	...	200	7,000	100	3,500	...	...	150	5,250	120	4,200				
	200	7,000	150	5,250			75	2,625	100	3,500			100	3,500	125	4,375				
Natrona,	80	8,640	..	....	177	13,275	86	9,288	...	...	150	11,250	80	8,630	..	..	131	9,825		
New Catfish,	..	..	..	....	...	....	125	6,000	...		200	7,200	150	6,300			160	5,760		
New Bethlehem,	80	3,360	60	2,400	80	3,360	125	5,250	110	4,400	300	4,800	140	5,880	100	4,000	325	4,600		
Oakland, No. 3,	..	..	..	..	..	..	..	..	..	..	..	..	100	3,833	60	3,324	180	3 313		
Pacific,	350	8,750	...	....	380	9,120	300	7,500	...	...	350	8,750	280	7,000	..	..	380	9,500		
Pancoast,	130	5,460	110	4,950	224	10,080	120	5,040	100	4,500	241	10,845	130	5,460	110	4 950	240	10,800		
Pardoe,	300	9,000	200	6,000	520	28,000	430	21,500	160	4,800	480	14,400	480	24,000	200	6,000	400	8,000		
									340	10,200										
Pardoe,	500	15,000	100	3,000	...	...	...	....	150	4,500	290	8,700	...	...	120	3,600	480	14,400		
			60	1,800					70	2,100					160	4,800				
Philadelphia,	170	3,400	80	1,600	300	3,600	140	2,800	..	....	...	....	160	3,200	60	720	100	2,750		
													90	1,800						
Pine Run,	175	7,350	80	3,360	155	5,425	190	7,980	70	2,940	190	6,650	175	7,350	90	3,780	140	4,900		
	90	3,780	50	2,100	90	1,800	90	3,780	60	2,520	100	2,000	140	5,880	70	2,924	160	2,000		
Rankin,	..	..	..	....	..	..	..	....	..	....	..	....	140	6,860	100	14,040	180	6,570		
Red Bank Furnace,	84	2,856	...	....	95	2,375	120	4,080	...	....	124	3,100	104	3,536	...	..	42	2,450		
	173	3,502	.	...	90	2,430	66	2,244	..	....	76	2,052	96	3,204			95	2,565		
Soldiers' Run,	150	7,350	125	5,000	300	10,500	150	7,350	200	8,000	400	14,000	150	7,350	150	6,000	400	14,000		
			125	5,000					100	4,000										
Stewardson Furnace,	175	4,200	80	3,600	185	3,700	160	3,840	75	3,375	180	3,600	185	4,440	80	3,000	190	3,800		
Stoneboro',	375	9,375	130	2,600	390	8,580	400	9,600	115	2,300	390	8,580	220	7,700	220	4,400	350	22,500		
			140	2,520											200	3,200				
Stoneboro',	190	4,750	135	2,430	320	5,440	180	4,500	145	3,190			250	5,000	210	4.200				
			140	2,800					190	3,610	280	6,460			220	4.400				
Washington,	120	5,040	100	4,500	224	10,080	130	5,460	120	4,320	240	10,080	120	5,040	100	3,600	224	10,080		
Welsh Bank,	230	9,660	280	15,680	370	13,320	230	9,660	260	14,560	360	12,960	220	9,240	280	15,680	390	14,040		
	220	3,300					240	3,600					230	3,450						
	240	8,640					235	8,460					210	7,560						
Wise Shaft,	200	8,400	160	3,920	450	11,025	170	7,140	150	3,750	430	14,190	190	7,980	190	4,845	400	13,200		
			140	5,880					125	2,500					145	2,900				

TABLE IV.—VENTILATION OF COLLIERIES—*Continued.*

NAME OF COLLIERY.	OCTOBER.						NOVEMBER.						DECEMBER.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Acharr,	240	10,080	48	1,728	338	10,478							225	9,450				
Baker Bank,	200	7,200	200	6,000	350	14,700	275	9,900	250	7,500	300	12,600						
Barnes,	100	2,000	80	2,400	90	1,440	100	3,000	100	3,000	100	1,600	100	3,000	100	3,000	200	4,000
	100	3,000			70	2,100	90	1,800			80	1,600	80	2,400	80	2,400	100	3,000
Barnes,	200	6,000	90	2,700	90	1,440	180	5,400			300	9,000	200	4,000			90	3,600
	100	2,000	70	2,100	60	1,800	70	1,400	60	1,800	70	4,200	60	1,800	60	1,800	100	3,000
	80	1,920			100	3,000	100	4,000	50	1,500	60	3,000	40	1,200	40	1,200	90	2,700
Beaver,	350	13,600	150	2,700	. . .	. . . .	300	10,800	200	3,600	. . .	. . . .	300	10,800	150	2,700		
			250	4,500					200	3,600					250	4,500		
Beaver,	. . .	. . . .	300	5,400	650	13,000	. . .	. . . .	250	4,500	600	12,000	. . .	. . .	300	5,400	650	13,000
			250	4,500					250	9,000					250	9,000		
									200	3,600								
Belleview,	159	7,314	54	3,044	296	11,544	227	10,442	66	3,366	. .	.	250	1,150	128	5,888		
Belleview,	. . .	. . . .	119	5,474	. . .	. . . .	. .	. .	93	4,278	435	16,965	. .	. . .	134	6,164	410	15,990
			109	5,868					101	5,252					118	6,136		
Burnett,	80	3,360	. .	. . . .	164	3,360	. .	. . . .	. .	. . . .	. . .	. . . .	85	3,570	55	2,200	180	3,600
Carbon Run,	. .	. .	. .	. . . .	. .	. .	. .	. .	. .	. .	. .	.	220	5,280	340	4,080	120	4,800
Catfish, No. 3,	200	7,000	180	6,300	200	7,000	200	7,000	. .	. . .	175	6,125	200	7,000	130	4,550	200	7,000
Church Hill,	150	5,400	50	1,800	150	5,400	75	2,700	30	1,400	150	5,400	60	2,160	50	1,420	120	4,320
			50	1,800					50	2,400			75	2,700	40	1,800		
Clinton,	100	4,200	120	3,600	900	27,000	110	4,620	120	3,600	450	12,000	130	5,460	140	4,200	450	13,500
	120	3,600	130	3,900			120	3,600	130	3,900			120	3,600	140	4,200		
Coal Centre,	80	3,360	80	1,921	90	3,780	91	2,160	85	2,040	85	2,040	125	2,568	110	2,640	115	2,760
Davidson, (Beaver Falls,)	120	5,040	100	4,000	300	4,800	150	4,800	150	4,500	500	10,000	187	6,000	150	4,500	500	10,000
Davidson, (Wampum,)	. . .	. . . .	. . .	. . . .	. . .	. . .	120	1,440	45	1,575	180	6,480	270	5,400	110	3,850	200	7,200
							50	1,000	50	1,750			180	2,160	110	3,850		
									50	1,750								
Edenburg,	87	2,592	100	4,000	120	2,970	250	7,562	250	7,000	200	8,100	400	12,100	300	8,400	300	12,150
Etna and Vesuvius,	95	4,845	107	5,464	.	. . .	110	5,610	83	4,565	. . .	. . .	132	6,732	104	5,720		
			165	7,755					124	5,828					211	11,816		

Etna and Vesuvius,	344	13,416	194	8,148	386	23,160	405	15,795	173	10,034	464	27,840	510	19,890	173	10,034	512	30,720
			245	15,435					241	14,460					270	16,200		
Fairmount, No. 1,	60	2,520																
Fairmount, No. 2,	120	5,040	100	4,200	100	3,600	250	10,500	150	6,300	300	10,800	200	8,400	125	5,225	300	10,800
									120	5,040			150	6,300	150	6 300		
Fairmount, No. 4,	80	2,000	80	2,800	100	3,000	240	7,200	186	7,912					200	8,400		
Hamilton,	100	5,000	100	4,000	300	9,000	120	5,760	200	6,000	240	7,200	250	10,000	200	8,000	222	8.880
	50	2,500			150	2.400	80	3,840	120	4,800	250	7,500	130	6,240	150	6,000	250	7,500
Hardserable,	100	3,900	50	2,400	95	1,900	100	3,900	€0	2,900	150	2,400	80	3,520			180	2,880
	95	1,900	40	2,000	90	1,800	95	3,705	50	2,400	110	2.200	105	4,105	65	3,200	100	2,000
Hickory Shaft,	. .	12,300	. . .	11,300	. .	12,300	. . .	. . . .	. .	. .	105	2,100	95	3,705	50	2,400	110	2,200
Home, No. 2,	100	4,950	90	4,500	115	5,692	140	6,930	130	6,500	140	6,930		12,000	. . .	11,000	.	12,600
Jackson,	305	9,150	310	7,440	307	9,2 0	300	9,000	324	7,776	350	10,500	130	6,435	125	6,250	125	6,125
Joy Hill,	315	8,662	230	3,066	340	6,573	270	7,425	280	2,520	310	6,000	320	9,600	325	7,800	352	10,560
Kittanning,	. .	. . . .	. . .	. . . .	. .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . .	250	6,875	350	3,675	320	6,240
													200	9,500	110	3,905	200	7,100
Lackawannock,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	100					
													40	1,060	30	1,062	50	1,050
Lower Hillville,	150	6,750	160	7,200	175	7,350	125	5,625	. . .	. . . .	150	6,300	40	1,000	25	1,875	45	1,012
Mahoning Furnace,	. . .	. . . .	.	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . .	200	9,000	200	8,400	260	8,400
Mansfield,	100	3,850	650	3,900	100	4,550	110	4,235	650	3,900	110	5,005	75	5,400	. . .		150	5,400
Maple Grove,	250	7,500	300	9,000	545	16,350	350	10,500	173	5,190	452	13,560	120	4,620	600	3,600	110	5,005
			235	7,150					231	6,930			241	7,230	180	5,400	412	12,360
Mineral Ridge,	100	4,900	100	3.500	500	12,500	120	5,880	187	6,545	500	12,500	120	4,200	150	5,250	600	15,000
Mineral Ridge,	150	5,250	75	2,6.5	. . .	. . . .	250	8,750	150	5,250	. . .	. . .	120	4,200	150	5,250		
	150	5,250	100	3,500			100	3,500	125	4,375			150	5,250	200	7,000		
													200	7,000	200	7,000		
Natrona,	154	16,632	. . .	.	266	20,950	193	28,950	. . .	. . . .	173	12,975	490	7,350	.	.	156	11,700
New Catfish,	180	6,750	135	5,670	170	6,120	200	7,700		. . . .	225	8,100	150	5,250	130	4,550	200	7,200
New Bethlehem,	120	5,040	100	4,000	300	4,800	160	6,720	170	6 800	170	6,120						
Oakland, No. 3,	110	4,216	120	2,599	220	4,050	120	4,599	100	2,583	240	4,438	110	4,216	180	4,649	250	4,600
Pacific,	260	9,360	. .	.	370	9,250	330	11,880	180	2,160	390	9,750	350	12,600	120	2,040	400	10,000
Pancoast,	120	5,040	100	4,500	224	10,080	130	5,460	110	4,950	240	10,800	250	5,000	60	1,620	370	15,540
															110	4,106	60	1,590
Pardoe,	440	22,000	300	9,000	400	12,000	470	23,500	350	10,500	450	15,000	460	23,000	250	7,500	600	18,000
Pardoe,	. . .	. . . .	90	2,700	270	7,100	. . .	. . . .	200	6,000	400	12,000	. . .	. . .	120	3,600	220	4,400
			170	5,100					100	3,000					200	6.000	60	1,200
Philadelphia,	160	3,200	80	2,200	100	1,200	170	3,400	90	1,080	90	2,470	170	3,400	90	1,080	110	2.825
															₹0			
Pine Run,	305	9,150	80	3,360	180	6,300	180	8,060	100	4,200	140	4,900	160	6,720	100	4,200	140	4,900
			60	2,520	140	4,900	120	5,040	60	2,520	90	1,800	140	5,880		2,520	90	1,800
Rankin,	85	3,825	123	1,845	185	6,660	110	4,950	120	4,320	300	4,800	280	12,600	90	1,620	230	3,680
Red Bank Furnace,	111	3,774	. . .	. . .	96	2,400	108	3,672	. .	. . . .	107	2,675	110	3.740	83	1,992	121	3,025
	100	3,400			80	2,160	117	3,978			109	2,943	118	4,017	85	1,870	139	3,753
Soldiers' Run,	125	6,125	150	6,000	300	10,500	125	6,125	75	3,600	400	14,000	130	6,350	100	4,800	350	12,250
			125	5,000			150	5,400	125	5,000			140	4,900	100	4.000		
															125	5,000		
Stewardson Furnace,	170	4,080	75	3,375	190	3,800	175	4,200	90	4,050	210	4,200	195	4.680	90	4 050	210	4,200
Stoneboro',	360	11,500	210	4,200	. . .	. . . .	. .	. . . .	. . .	. . . .	. . .	. . . .	450	10,000	300	6,000		
			180	3,240											250	4,500		
Stoneboro',	150	2,400	200	4,800	480	25,920	. . .	. . . .	. . .	. . . .	. . .	. . .	80	1,600	200	4,800	300	18,000
	110	2,640	215	4,300									200	3,400	300	6,*09		

IV.—VENTILATION OF COLLIERIES—*Continued.*

Name of Colliery.	October.						November.						December.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Washington,	130	5,460	110	3,960	240	10,080	120	5,040	100	3,600	224	10,080	160	6,720	80	1,600	220	5,280
Welsh Bank,	210	8,820	275	15,400	380	13,680	210	8,820	270	15,120	275	14,220	220	9,240	90	1,440	430	18,060
	220	3,300					230	3,450					240	3,600	280	15,680	390	14,040
	240	8,640					220	7,920					220	7,920				
Wheeler Shaft,								4,400		600				4,200		3,900		7,900
Wise Shaft,	210	8,820	160	4,080	225	10,725							200	8,400	160	4,080	345	11,385
			130	2,600											140	2,800		

LIST OF ACCIDENTS *occurring in the mines of the Second Bituminous Coal District of Pennsylvania, for the year ended December 31, 1880.*

DATE.	No. of accident.	Name of Person Injured.	Age.	Married or Single.	Number of orphans.	Name of Colliery.	Location—County.	Date of investigation.	Nature and Cause of Accident.
Jan. 6	1	John Siple,	14	Single,		Washington,	Jefferson,		Bruised on left leg and body by a fall of coal.
10	2	John J. Davis,	42	Married,		Pancoast,	Jefferson,		His body bruised by falling on his ribs while bending rails, his foot slipped.
	3	David Watt,	55	Married,		Stoneboro' mine,	Mercer,		Head severely cut by trying to get on between cars.
Feb. 12	4	Aaron Pettegrew,	36	Married,	4	Belleview,	Allegheny,	Feb. 13	Burned by explosion of gas, proving fatal in fifteen hours after the accident.
20	5	John Sullivan, junior,	38	Single,		Fairmount, No. 1,	Clarion,	Feb. 21	Fatally injured by a fall of rock from the roof. His limbs and body severely bruised, from the effects of which he died in a few hours.
24	6	Morris Berry,		Married,		Belleview,	Allegheny,		Leg broken.
Mar. —	7	Michael Obelighner,	50	Married,		Pardoe mine,	Mercer,		Hand injured by fall of roof in room.
20	8	Clide Smith,	15	Single,		Hamilton mine,	Jefferson,		Finger cut off by mine cars jumping off track.
15	9	Mordica Jenkins,	40	Married,		Stoneboro' mine,	Mercer,		Back and leg bruised by a fall of slate.
Apr. 28	10	Solomon Portman,	22	Single,		Hickory shaft,	Mercer,		Finger cut off and thumb smashed by coupling cars.
May 3	11	A. H. Fraze,	54	Married,		Belleview,	Allegheny,		Ribs broken, and otherwise injured, by trying to get on cars while in motion. He missed his hold, and was caught between the car and the rib.
17	12	Matthias Eck,		Married,		Catfish, No. 3,	Clarion,	May 18	Bruised, but no bones broken, by a fall of coal, slate, and bony.
17	13	John Eck,		Single,		Catfish, No. 3,	Clarion,	May 18	Collar-bone broken, and bruised otherwise. John and his father were working together at the time of the accident. They had made a start, on the side of an old entry, to split a pillar, and while they were bearing in under the coal some of the slate and bony, left hanging on the side of the entry, with some of the coal, dropped and caught them.
20	14	Matthias Cridal,	32	Single,		Pardoe mine,	Mercer,		Collar-bone broken by falling roof, while working in entry.
21	15	Harvey Smileg,	32	Married,		Stoneboro' mine,	Mercer,		Finger smashed while coupling cars on railroad, near chutes.
June 3	16	Joseph Strosser,	38	Married,		Stoneboro' mine,	Mercer,		Foot hurt by being caught between cars while riding out of the mine on coupling.
19	17	John Charles,	24	Single,		Washington mine,	Jefferson,		Shoulder and foot bruised by a fall of a piece of coal while mining.

LIST OF ACCIDENTS IN THE SECOND BITUMINOUS MINE DISTRICT—*Continued.*

DATE.	No. of accident.	Name of Person Injured.	Age.	Married or Single.	Number of orphans.	Name of Colliery.	Location—County.	Date of investigation.	Nature and Cause of Accident.
July 12	18	Llewellyn Hughes, . .	32	Married, . .	. .	Barnes' mines, ...	Butler, ...	July 16	Leg broken and side badly bruised by roof falling while taking up bottom for road in his room.
23	19	Robert Barr, ...	. . . . .	. .	Belleview mine, ...	Allegheny, . . .	. . . .	Leg hurt by being caught between cars.
31	20	J. C. Baner, ...	46	Married, . .	. .	Fairmount, ...	Clarion, ...		Hand and side bruised, caused by fall of coal.
Sept. 1	21	Anthony Dugan, ...	40	Married, . .	. .	Fairmount, ...	Clarion, ...	Sept. 4	Bruised by a fall of coal, while undermining. The amount of coal that fell, estimated to be over a ton in weight. He was severely injured, and his recovery at one time considered doubtful.
2	22	Thomas Bridson, ...	9	Boy, ...	. .	Fairmount, No. 2, ...	Clarion, ...	Sept. 4	Foot smashed. Little Thomas Bridson was not employed at the mine, but, in company with another little boy, had come up to the pit, and had got on a full trip, and while the cars were in motion he slipped and fell under the cars, smashing his little foot so bad that his leg had to be amputated below the knee.
19	23	David Jonson, ...	28	Single, . . .	. .	Pancoast mine, ...	Jefferson, ...	. . . .	Foot injured by a lump of coal falling on it while undermining.
30	24	James Maxwell, ...	21	Single, . . .	. .	Burnett mine, ...	Butler, ...	. . . . .	Foot hurt by pit cars.
Oct. —	25	Daniel O'Conner, ...	22	Married, . .	. .	Burnett mine, ...	Butler, ...	. . . . .	Heel smashed by a fall of coal.
20	26	Thomas Green, ...	50	Married, . .	.	Wise shaft, ...	Mercer, ...	. . . . .	Leg broken by a piece of coal falling.
Nov. 11	27	Richard Smith, ...	33	Married, . .	.	Soldier Run mine, ...	Jefferson, ...	. . . . .	Fingers crushed.

THIRD DISTRICT.—William L. Richards, Inspector.

Honorable A. K. DUNKEL,

Secretary of Internal Affairs.

SIR: I herewith have the honor to present my fourth annual report of the condition and progress made towards placing the mines in a better condition as to ventilation and drainage in the Third bituminous coal district of Pennsylvania, comprising the counties of Tioga, Bradford, Lycoming, Clinton, Elk, Potter, McKean, Cameron, Clearfield, Centre, Huntingdon, Blair, and Cambria.

In several of the counties above named, during the early part of the present year, a partial suspension of business took place, owing to a difference existing between employers and miners as to the rate paid per ton for mining coal. In some of the counties the suspension lasted over two months. The coal trade during the Presidential campaign was dull; but after the final result was announced, a general revival was apparent; the wheels of trade were once more in motion and bituminous coal became in active demand.

Coal operators at once commenced putting their mines in such a condition that it was evident a more permanent and reliable trade was expected for the next four years at least.

In Clearfield county some ten new mines have been lately opened, which will add largely to the already large out-put of that county. At the present increased output another road will be required in addition to the present track with its heavy grade, requiring four large locomotives to draw thirty-two loaded cars up to the summit. Clearfield coal is fast pushing its way into all our eastern markets, and has become a formidable rival to the great Maryland coal field with its thick veins.

Cambria county, one of the oldest bituminous coal producing counties in the State, that has lain in a dormant condition so many years, (with the exception of Johnstown,) has awakened from its lethargy and will soon take its place as one of the leading counties in the State for the production of coal and iron. Coal operators are already exploring the much neglected coal territory, and as a result several new drifts and a shaft have been put in operation, and the incoming year will see the largest out-put from that county that has been seen for many years. Several other counties in my district will have an increased out-put next year, and from present indications, the out-put of the whole district will be at least one fourth larger than it has ever been before. Not one twentieth of the productive coal

territory of my district has yet been developed, and it is a demonstrable fact that the out-put of bituminous and semi-bituminous coal is yet in its infancy east of the Allegheny mountains.

If the opening up of new works and the development of coal territory continues to be as rapid as at present, the day is not far distant when the present out-put will be doubled.

The coal territory east of the Allegheny mountains is noted for the variety of its coal, embracing the entire range from the true bituminous to the valuable semi-bituminous, producing the very best coal for blacksmithing and forging purposes in the United States, and also a superior steam coal, and, taken as a whole, it is very free from sulphur. Our State cannot too highly prize the great wealth that nature has stored away to be used from time to time in our industrial pursuits. Such stored wealth must come to an end some time, and if no steps are taken to check the reckless waste that is now going on, Pennsylvania will be dependent too soon on some other part of the United States for her supply of coal. Perhaps some persons are disposed to think lightly of such a statement, but if they think I am looking too far into the future, let them examine the mode in which our coal fields are worked out, and they will, perhaps, view it in a different light.

Space in this report will not permit my giving a detailed statement of how so much valuable coal is lost. I will briefly mention two ways. One is the manner in which coal lands are leased, the other the mode in which the coal is worked out.

A section of coal land is leased with, perhaps, three or four very good veins of coal running through it. The largest and most profitable is selected to commence operations on. The vein is worked out, and, as a result, the vein or veins lying directly above cannot be worked by reason of the top of the lower vein falling in, reaching to the bottom of the upper vein, unless the strata is thick enough between them to prevent the upper vein from being damaged. Thus a large amount of good coal is lost that will be in demand at some future day. The other is the reckless manner in which the vein is worked out, showing the entire want of any knowledge of economical mining. Whole pillars are allowed to remain in, no means being provided to take them out, and, in addition to the pillars, large sections of coal are allowed to remain untouched.

If coal operators wish to see their mines properly worked, and economically managed, they must employ competent inside bosses. Until I had entered upon my duties as Mine Inspector I had no idea of the wretched manner in which many of the mines were worked, and the reckless waste of coal continually going on. The subject of mine management will be taken up under its appropriate head, Condition of Mines. I mention the subject here to show by what means coal is wasted—a loss to the State, the land owner, and the operator.

CONDITION OF THE MINES IN THE THIRD DISTRICT.

In presenting to you this part of my report I shall endeavor to point out

the progress that has been made, and some of the difficulties to be met with in bringing the mines up to a proper standard. Since my last annual report substantial progress upon the whole has been made. New ventilating furnaces and fans have been added to the ventilating arrangements, and a large number of alterations made of such a nature as will tend to improve the ventilation and drainage of the mines, but much yet remains to be done. Some of our superintendents and inside bosses are realizing the fact that it requires some knowledge of mining to manage a mine properly. The inside boss who has charge of a mine should have a practical knowledge of all the details connected with the inside workings of the mine. The mining of coal is so varied that while a man may be competent to manage a mine properly in one location he may fail in another. The ventilation may be an easy task in one mine, but he may find it a difficult matter, for want of the required information in that special line in some other mines, and so I might go on through all the details, drainage, haulage, mode of working the coal, &c., a proper knowledge of which makes mining economical and profitable.

It is for the want of this knowledge among inside bosses that the inspector meets with most of his trouble. He has to combat the most erroneous ideas about the ventilation of a mine, entertained and held by some of our inside bosses, which they endeavor to carry out as a pet theory of their own, that is as far behind the age as the stage coach to the locomotive. Such a class of men I find have no knowledge of the natural laws, and especially as applied to air in motion. They never consult works on mining or the ventilation of mines, and have only their own crude ideas on the subject, which they endeavor to put in operation in opposition to the instructions of the inspector. As a general rule, I find mines managed by such men not properly ventilated or drained, and a reckless waste of coal in the shape of pillars left in that should be taken out.

I also find unnecessary expenses incurred, that could be avoided, if the person in charge of the mine or mines was not ignorant of that specialty of which he claims to have a knowledge. It will be seen by reference to my former reports that I have endeavored to impress upon all those connected with mines and mining the necessity of having our mines under the charge of competent men. While the State enacts laws to improve the condition of our mines, and inspectors are appointed to see them properly enforced, they are not always fulfilled, sometimes willfully, but in most cases for want of the necessary knowledge on the part of those having the mines under their charge. If the coal mines of Pennsylvania are ever brought to that standard so much desired by all competent mining engineers and others in connection with our mines, who are looking forward to the day when the mines will be worked on some scientific basis, they must be under the charge of a class of men trained in all that pertains to practical mining. What is needed to make our mining laws more complete is a State examining board, whose duty would be to examine candidates who present them-

selves for examination as to their fitness to take charge of and conduct properly underground work. Such an examination should be held with the view of giving to the State and the coal operator good competent inside bosses. The State is as much interested as the operator, for without competent men in charge of the mines the mining laws can never be successfully enforced. The examining board will of course discriminate between that part of an education necessary for a competent mining engineer and a thoroughly trained inside boss.

The first requires a wide range, embracing within its sphere: Geology, mineralogy, engineering in its threefold form, civil, mining and mechanical, and a thorough knowledge of the laws that govern matter in all its forms. In fact, no profession requires such a varied knowledge of facts and figures, and so thorough an acquaintance with the natural laws, as does that of a mining engineer.

While it is not necessary that an inside boss should have a knowledge of the higher branches of an education, he should be well versed in all that pertains to the ventilation and inside work of a mine, and should be a practical miner, with considerable experience. By having such a class of men to look after the ventilation and inside work of a mine, the inspector would know that his instructions would be faithfully carried out, and see that his labor was not in vain.

But as a number of our mines are at present managed the inspector finds a difficult task before him. As well might you ask an inspector of machinery to say that the work turned out by unskilled workmen was first-class, as an inspector of mines to say that the mines were in a first-class condition, with incompetent men to manage them. It is true, since the ventilation law came into force, a great change has been made in the condition of the mines in this district; means to ventilate have been provided in all, except a few small works that start and stop with the rise and fall of the market, and in those mines a fair current of air is in circulation by natural ventilation. In the district, substantial progress is being made in the right direction.

In the foregoing remarks I have endeavored to show the importance of having competent men to manage the inside work of the mines, and the necessity of some steps being taken to devise a way for the accomplishment of that object. Trusting the subject will receive the attention it deserves from all those who are interested, I leave it for the present.

Yours respectfully,

WILLIAM L. RICHARDS,

Mine Inspector, Third Bituminous District, Pennsylvania.

BLOSSBURG, *Tioga county.*

REMARKS ON ACCIDENTS.

It will be seen by referring to the list of accidents that there is a slight increase of non-fatal accidents over last year, and two in excess of the fatal; that is owing principally to the increased amount of labor done in the mines during the latter part of the year, and the opening up of several new mines in the district, which, of course, increased the number of men employed. So that if the increased amount of labor done and the employment of a larger number of men be taken into consideration, the ratio will be nearly the same as that of last year. The list of accidents also show that a large proportion of the accidents, fatal and non-fatal, are caused by falls of coal, and an investigation into the cases, fatal and non-fatal, show a want of care on the part of the person injured or killed, the necessary precautions had not been taken to properly sprag their coal while undermining; several accidents have also occured through the careless manner in which the person injured or killed has commenced to undermine near a a piece of coal that a shot had been put in, but the coal not brought down; and in other instances by attempting to cut a shearing farther in under similar circumstances, showing an entire absence of the necessary precautions that should be used. I have instructed the superintendents and inside bosses to watch over and instruct their men to use every precaution about their work, and to see that all working places have sufficient props and sprags in them to be ready for any emergency. Some companies have a set of precautionary rules printed and put up in conspicuous places around their work. Such rules should be adopted and enforced by every coal company, as they are for the special benefit of the miner, reminding him of the danger of negligence. In fact the rules and regulations cannot be too stringent where life and limb are in danger. If men will not use the necessary precautions about their work to prevent accidents, there should be some general State law that could be enforced in almost every case. It is just as necessary to have a law to prevent accidents in the mines as one for the prevention of accidents on railroads, or in factories, where machinery is used. Man soon gets accustomed to danger and becomes careless of the consequences, unless prevented by stringent laws. While we have a law requiring the coal operator to put his mine in a safe condition, so far as the proper ventilation and other details are concerned, we have no law that applies to the every day work of the miner, regulating the mode in which he shall mine his coal as best to insure him from accidents.

It may be stated that such a law could not be applied to the varied conditions under which coal is mined, and could not, therefore, be enforced. I am fully aware that a law which would interfere too much with the minute details of mining coal could never be enforced, but I am assured of the fact, from my past experience, that a great many of the accidents could be prevented by the use of precautionary measures that can be applied to mining coal under all circumstances. It is true there are accidents that are un-

avoidable, and that no human foresight could prevent, but they are few in comparison to the number that could be avoided.

I therefore trust that if any amendment is made to the mining laws of this State the subject as to the cause of accidents in mines will be taken up for consideration, and some general law enacted that will apply to the mining of coal, so that some of the accidents which occur through gross carelessness can be prevented. With the ventilation law amended, (for it is very vague and indefinite at present,) and a law as stated above, the mining of coal would be free, to a certain extent, from the danger that now attends it.

EXAMINATION OF MINES.

MORRIS RUN MINES.—Located at Morris Run, Tioga county; W. S Nearing, manager and mining engineer; William R. Gilmour, superintendent of mines. Worked on the double-heading system, ventilated by furnace with over-cast. Three drifts in operation.

This mine is among the largest in northern Pennsylvania. Two of the drifts are now into a large and extensive field of coal. The other is nearly worked out. The mine is well arranged for thorough ventilation by having double headings in all parts of the work. An examination showed a good current of air through the mine. The furnaces are of good size, and produce a good current, and there is no reason why a good current of air should not at all times be maintained, if the ventilating doors are properly attended to, as all the arrangements for ventilation are in good order. The endless wire rope to haul coal out of one of the drifts, to which reference was made in my last report, has proved a success in every respect. Mr. Nearing, the mining engineer, has introduced a new power in the form of compressed air. He is operating with two compressors, one of 25-horse power, the other 90. The first has a working cylinder 15-inch diameter, with 18-inch stroke; the other has two cylinders—18-inch diameter, 24-inch stroke.

These compressors do a large amount of work. Two coal cutters are now run by compressed air that cut two thousand tons per month, and Mr. Nearing states he intends adding several more during the coming summer. Besides running the coal cutters, Mr. Nearing has a large pump in the mines running by compressed air; what formerly cost the company seven dollars and eighty-seven cents per day, now costs two dollars and fifty cents per day, a saving of five dollars and thirty-seven cents. The air is sent through 5,900 feet of pipe from the compressor to the pump. In working the pump and coal cutters a large amount of pure air is sent into the mine, thus adding to the ventilation. Mr. Nearing is one of our progressive mining engineers, and avails himself of all the latest improvements that pertain to mining, whether of home or foreign invention. He informs me he shall next attempt to reduce the cost of mine haulage by the introduction of small mine locomotives run by compressed air, thus effecting a great saving in the haulage of coal in the mines. Mining engineers of Great Britain are turning their attention to compressed air as a power

to be used under ground, and several tests have been made with the mine locomotive, compressed air being the power used to run it with. The trials all proved satisfactory, and if Mr. Nearing proves to American mining engineers that the compressed air locomotive can be successfully used under ground, and the cost of hauling reduced thereby, he will confer a benefit upon coal operators, and open up a new field in this country for the advocates of compressed air in connection with mining operations.

ARNOT MINES.

Located at Arnot, Tioga county, four miles from the town of Blossburg, the center of the celebrated Blossburg coal field. Operated by the Blossburg coal company. S. B. Elliott, manager at Arnot, and mining engineer. J. J. Davis, superintendent of mining. This is one of the largest mines in this part of the State. Four drifts are in operation. One of the drifts has lately been opened and is located about three miles from the old work and reached by a narrow guage railroad. Two of the drifts are nearly finished, the only coal mined in them being the pillars. The mines are ventilated by furnace and overcast, worked on the double-heading system. An examination of the mines showed a very fair current of air around the face of the work. One of the drifts known as the lower drift, is somewhat troublesome to ventilate, owing to the fact that two inlets are used, one a great deal higher than the other, and, as a consequence, the air changes from one inlet to the other as the temperature of the air changes outside, causing a stagnation of the air inside. Mr. Davis has the inside of the mine well arranged for the ventilation of the work, and as the trouble referred to above interfered with the proper ventilation of the mine, Messrs. Elliott and Davis decided a change must be made, to have a steady current at all times. With this alteration there should be no reason why the mines at Arnot should not be well ventilated. This company, during the last year or two, have gone largely into the coke business, and have, at present, two hundred coke ovens in operation. This fall their large coal crusher and washer was burned down, but will be replaced by one of the largest of its kind in the State.

The progress of the place, during the last few years, is largely due to S. B. Elliott, Esq., whose untiring energy and good management have brought it up to its present standard.

ANTRIM MINES.

Located at Antrim, Tioga county. Operated by the Fall Brook Coal Company. A. Hardt, mining engineer; Thomas Farrer, manager; Thomas Gaffeny, superintendent of mines. Ventilated by furnace, worked on the double-heading system.

An examination of this mine showed that Mr. Gaffeny had taken a right view of the ventilation of the mine by having the air well distributed around all the working places, and, taken as a whole, the mine is very well ventilated. The mine is a difficult one to drain, owing to the unevenness of

the strata, but Messrs. Farrer and Gaffeny have overcome many difficulties, and have their mine very well drained. A large ventilating furnace has lately been put in the mine, which materially aids the ventilation. Messrs. Farrer and Gaffeny have done all in their power to have their mine come fully up to the standard required by law, and have made many improvements during the last year.

FALL BROOK MINES.

This mine is operated by the Fall Brook Coal Company, located at Fall Brook, Tioga county. A. Hardt, mining engineer; A. J. Owens, manager; Frederick Wells, superintendent of mines. Ventilated by furnace, and worked on the double-heading system. This mine for a number of years has not been running very steady, but at present is working about one hundred and fifty miners. As stated in my former report, this mine is a difficult one to ventilate, on account of the many breaks in the top, reaching to the surface. A large number of pillars having been drawn out, allowing the top to fall in, which required a large amount of brattice to keep the air-ways in tact. An examination of the mine showed that it required a close watch on the part of the inside boss to see that brattice and doors were kept in good order, to ensure a current of air around the face of the work.

Mr. Wells and his inside boss, Robert Russell, went with me through the mine, and were anxious to do all in their power to keep their mine in a proper condition. Messrs. Wells and Russell have lately taken charge of the mine, and have been busy making all the necessary improvements in connection with the doors and brattice, to keep the air in its proper channel, until it reaches the face of the work. With the improvements as stated, and a close watch over the air-ways in the future, the ventilation of Fall Brook will be found to be all right.

McINTYRE MINES.

Located at McIntyre, Lycoming county; G. H. Platt, manager and mining engineer; operated by the McIntyre coal company; worked partially on the double heading system and ventilated by furnace. This is one of the large bituminous mines of the State. I found on examination the current of air from the inlet of the different drifts well taken care of until it had reached the face of the work. Brattice and good ventilating doors were found just where they were needed, and all kept in good order and well attended to. This is very important in all mines, and especially in large mines, where the air has to be conducted a long distance before reaching the face of the work. Unless the brattice is in good order, and the doors properly attended to, the furnace or fan would be of very little use, for most of the air would escape before it reached its destination. In most of the mines not more than one fourth of the air that starts from the inlet reaches the face of the work. It escapes through the doors left open by the negligence of the boys attending them, and through defective brattice.

Much credit is due the mine superintendent, Thomas Blythe, for the care he has taken in seeing that part of the ventilating arrangement properly attended to. As a result I found a good current of air circulating around the face of his work. Mr. G. H. Platt, the mining engineer and manager of the company, has made many valuable improvements in connection with the mining department at McIntyre, and has at all times expressed a wish to improve his mines, so that they will fill all the requirements of the law.

BARCLAY MINES.

Located at Barelay, Bradford county; operated by the Towanda Coal Company; F. F. Lyons, manager and mining engineer; Thomas Ditchburn, superintendent of mines; ventilated by furnace and worked on the single and double heading system. This mine has been in operation for over thirty years, and is at the present time doing a large business. Four drifts are in operation; two have lately been put in opening up a new field of coal.

I found on examination in the new drifts a very good current of air at the face of the work, and every arrangement made to have the mine well ventilated; also, good ventilating doors and a furnace to each drift of a suitable size. Mr. Ditchburn has got the work in very good shape, and with the present plan of ventilating the mine, should have no trouble. Mr. Lyons, the mining engineer of the company, deserves much credit for the improvements made in the new drifts; they are an improvement over the old ones in every respect, both as to mode in which the coal is worked, and also the drainage and ventilation. In the old drifts the ventilation was not so good, owing to so much open work, and the difficulty in the way of keeping proper air-ways open and intact when pillars are being drawn back, that connect the old and abandoned work of years ago, a large amount of brattice work has to be done, and continually watched over as a crush may at any time destroy it.

Notwithstanding the many difficulties to overcome, I found a very fair current of air circulating at the face of the work.

SCHRAEDER MINES.

Operated by the Schraeder Coal Company. Located at Carbon Run, Bradford county. R. A. Abbott, general manager. Ventilated by furnace. Worked on the double and single-heading system. This company have three drifts in operation, one of the drifts has been in operation a long time and is nearly worked out, this drift has a small furnace, but is well supplied with air, nearly all the headings being driven through the hill, so that the men are supplied with fresh air direct from the outside, and if Messrs. Williams and Jones, the inside bosses, will put up proper doors and brattice to direct the current, they can have a well ventilated drift, the other two drifts have not been long in operation. One of them is but little worked, the coal territory being limited; the other is worked very extensively. In this drift considerable trouble was met with in the shape of a fault that

runs through the field of coal at all angles, and this seriously interfered with the general plan upon which the drift was to be ventilated. Mr. Abbott, the general manager, had a good ventilating furnace put in and every arrangement made to ventilate the drift properly. When I last visited this mine I was much pleased to find that Messrs. Williams and Jones had overcome the difficulty mentioned above, and succeeded in making the proper connections and perfecting their ventilating arrangements, and at present have their mine in a very good condition. I found very good ventilating doors and all the necessary brattice to keep the air intact. With one or two exceptions I found the mine very well ventilated and drained, and with their present arrangements can be kept so.

DAGUSCAHONDA MINES.

Located at Daguscahonda, near Centerville, Elk county; operated by the North-Western Mining and Exchange Company; David Robinson, general superintendent; ventilated by a 16-foot fan and furnaces; worked on the single and double heading system; four drifts are in operation; two of of them are ventilated by the fan, the other two by furnace. An examination of this mine showed the ventilating arrangement good, and the work well laid out; doors and brattice in their proper place, and all kept in good order. In two of the drifts the fan gives more than sufficient air, and Mr. Dowie, the inside boss, has taken good care of it, until it reaches the face of the work, so that a good current of air is found in all the working places. In the other two drifts, ventilated by furnaces, I found very good arrangements made to have them ventilated properly. This company have done a great deal during the last year to improve the condition of their mines, and much credit is due to Mr. May, the company's mining engineer, and Mr. Robinson, for the many improvements that have been made, and especially in the ventilation of the mine. With such good management, Daguscahonda should have no trouble in fulfilling all the requirements of the law.

ST. MARY'S MINE.

Operated by the St. Mary's Coal Company. Located near St. Mary's, Elk county; J. B. Coryell, general manager; Joseph Patton, superintendent. Ventilation by furnace. Since my last report, the ventilation of this mine has been very much improved; a good ventilating furnace has been put in, proper air-ways driven, and the entire mine put in a better condition. When last examined, I was much pleased to find the ventilation so much improved. I found proper doors and brattice, and a very good current of air at the face of the work. This mine is not large, and has not been worked properly until lately, but at present the work is in good shape, and by proper management in the future, can be well ventilated.

CASCADE MINES.

Operated by Hall & Kaul. Located one mile from St. Mary's, Elk county. Andrew Kaul, general manager. Ventilated by furnace. Worked on the

double-headed system. At present three drifts are in operation; one of these drifts was put in to open up an old mine that had been worked several years ago. When I examined this drift, I found it in a bad state. No ventilating furnace, and the air-ways narrow, and nearly choked up with *debris*. Little or no circulation in the mines. I at once informed the superintendent, that under no circumstances would a mine be allowed to work under such conditions. Before I left, arrangements were made to have an air shaft put down, and proper air-ways driven, with the much needed doors and brattice, and the mine put in such a condition, that in the future it will be found to be properly ventilated. In the other two drifts, I found things in a different condition. These two drifts I found all right so far as the arrangement for a proper ventilation of them was concerned, with one exception, viz: I found no proper ventilating furnace in them. I immediately communicated the fact to Messrs. Kaul & Hall, who at once stated that a furnace should be put in, and all the necessary improvements made to insure a proper ventilation of their mine. With a good furnace, this mine can be well ventilated. The work is well laid out with good air-ways and ventilating shaft, and with proper doors and brattice, the mine will be all right.

EUREKA MINES.

Located near Centerville, Elk county. Operated by Daniel Eldridge. Ventilated by furnaces, worked on the single-heading system. D. Eldridge, superintendent. This mine has been lately opened. When I examined the mine I found the work well laid out with a good air shaft and return air-ways. But the inside boss had substituted canvas for proper ventilating doors. I informed Mr. Eldridge that was a very poor substitute for a door in this land of timber. He at once had them changed, and proper doors are now up. With good doors, this mine can be properly ventilated. Mr. Eldridge is anxious to have his mine come fully up to the requirements of the law, and has at all times signified his intention to comply with the law in every respect. Mr. Eldridge deserves credit for opening up and working veins so thin that no other capitalist would touch them, and by his indefatigable energy, business capacity, and knowledge of mining coal economically, he has made it pay.

GLEN MAYO MINES.

Located near Rolfe, Elk county. Operated by J. H. Mayo & Co. J. H. Mayo, general manager. A. S. R. Richards, superintendent of mines. This mine, as stated in my former report, is part of an old mine, re-opened in hopes of reaching a better field of coal, after passing the old boundary line. The mine is a difficult one to work, owing to the weak top, it being almost impossible to drive an air-way without the top coming down. Mr. Richards, the superintendent, stated to me that from recent explorations made, they would soon reach good top with their main-heading. The coal is good, and if a sound top can be reached, the mine will be made to pay its

way. An examination showed the want of a proper air-shaft, which was being put down at the time of my visit. A heading is being driven towards the shaft, which was needed, as the air was not properly circulated around the face of the mine, for want of an air-shaft and furnace. Mr. Richards informs me that as soon as the shaft is down, a good ventilating furnace will be put in immediately, which will put the mine in a shape to be properly ventilated, and I trust on my next visit to find a sound top, and the ventilation of the mine all right.

BUTTS' MINE.

Operated by J. E. Butts, Jr.; located at Buttsville, near Alton, McKean county; J. E. Butts, superintendent. This mine has been flooded several times on account of the pumps breaking. At my last visit I found the lower part of the mine flooded, the upper part being worked from a drift. It is almost impossible to describe this mine as to how it is worked or ventilated. The coal can only be worked where it is good, so that it is picked out here and there. The top is not strong, breaking to the surface where the coal is worked out. On account of the weak top, and the mode of working the coal it would be impossible to ventilate the mine by regular air-ways, and, as it is only a few feet to the surface, each heading has an opening to the surface, and I frequently would come across three or four rooms with an air-shaft at the end of them. When the water is taken out of the lower part of the work, arrangements will be made to improve the ventilation by having a furnace put in the lower part. There is already a good air-shaft down—now used to send steam down to the pumps. With the aid of the steam exhaust and a small ventilating furnace, this part of the mine can be made all right.

CLERMONT MINES.

Located at Clermont, McKean county. Operated by the Buffalo Coal Company. James Pollock, general manager and mining engineer. Robert Dick, superintendent of mines. Since my last report, Mr. Dick has greatly improved the ventilation of this mine. All the air-ways have been overhauled, doors and brattices properly attended to, so that I find the mine in a far better condition than it has been heretofore. The mine is very wet, the water coming down from the roof in large quantities, making not a very pleasant mine to manage. Notwithstanding the large amount of water, the mine is very well drained, and taken upon the whole the ventilation is very fair.

INSTANTER MINES.

Located at Instanter, three and a half miles from Clermont, McKean county. Operated by the Buffalo Coal Company. James Pollock, general manager and mining engineer. This is a new mine, has not been long in operation. The mine is worked on the double-heading system, and ventilated by furnace. I found, on my second visit to this mine, that Mr. Pollock, the present manager, had made several changes in the mode of venti-

lation, and an examination of the mine showed a very fair current of air circulating around the face of the work.

Mr. Pollock is an efficient manager, and as he has the management of Instanter and Clermont, I have not the least doubt that these mines will be brought fully up to the requirements of the law.

MOSHANNON MINES.

Operated by the Moshannon Coal Company. This company have two drifts in operation, the first is located four miles from Osceola mills, on the Moshannon branch of the Tyrone and Clearfield railroad, Clearfield county. This drift is nearly worked out. The other has been lately put in, and located one mile and a half above Houtzdale, on the same line. P. B. Zentmyre, manager. Ventilated by furnace. Worked on the single-heading system. An examination showed a very fair current of air at or near the face of all the working places in the old Moshannon drift. The arrangements for ventilation were very good, except in one range of rooms. This section of the mine was cut off from the rest of the work, and was not sufficiently ventilated. I at once made arrangements to have more air come to that section.

The arrangements for ventilating the new drift are very good. At my last visit, the work was not sufficiently advanced to see all Mr. Zentmyre's plans for ventilating the drift, but, from the explanations given to me, I think he will have no trouble if he faithfully follows the plans described. Too often I find theoretical plans with a very little practice, but trust Mr. Zentmyre's plans will be put into practice without fail.

STERLING MINES.

Located at Sterling, near Houtzdale, Clearfield county. Operated by Robert Hare Powell. Edward McHugh, general manager and mining engineer. James Campbell, superintendent of mines. Four drifts are in operation, two of them are known as Sterling No. 1, the other two as Sterling No. 2. Sterling No. 2 is located about one mile from Sterling, on the Goss Run branch. The plan of ventilation is by furnace. Worked on the single-heading system—several of the main headings being double. Mr. Campbell has made very good arrangements to ventilate all the drifts. At Sterling No. 1, he had to overcome some very bad faults and clay veins that seriously interfered with his plan of ventilation. At Sterling No. 1 the coal is hauled out by a mine locomotive. And for the ventilation of that part of the mine where the locomotive is used, a special furnace is provided, having no connection with any other part of the mine. An examination of this mine showed a pretty fair distribution of the air. I found very good doors and brattice, and the air kept very well up to the face of the mine. At Sterling No. 2, I found all the arrangements for ventilating the mine, except a furnace. A very good current was found, but like all natural ventilation, it may be good to-day and bad to-morrow. It depends entirely on the temperature of the air outside, if the temperature outside

is nearly equal that inside, little or no current will be found in the mine. I spoke to Mr. Edward McHugh about having a furnace without delay, and he said he regretted very much it was not in, but he should at once attend to it.

FRANKLIN MINES.

Operated by the Kittanning Coal Company. Located near Houtzdale, Clearfield county. James R. Cameron, general manager and mining engineer. Ventilated by furnace. Worked partially on the double-heading system. Since my last report many important improvements in the ventilation of this mine have been effected. Mr. Cameron, with the aid of Mr. Maurice Ramsay, the mine superintendent, has worked faithfully to have their mine come fully up to the requirements of the law. This mine, as stated in my last report, is a difficult mine to ventilate properly on account of the many clay veins, but under all the drawbacks the end in view has been accomplished, and the mine is well ventilated so far as the many difficulties to overcome will admit of. The coal is hauled out by a mine locomotive, and special arrangements have been made to ventilate that part of the mine where the locomotive runs. The air comes in at two places, one at the back of the work by a shaft, the other in through an old drift, the air passes through the work before reaching the locomotive tunnel, the large furnace being near the tunnel, so there can be no danger of any gases reaching the men. During my examination I was much pleased with the improvements that have been made from time to time, each year adding to the improved condition of the mine, this is as it should be, each year should mark a step forward, and in a few years we should have all our mines in a condition that need not fear inspection, a credit to the operator, superintendent, and inside boss, to say nothing about the pleasure it would give the inspector.

PENN MINES.

Located near Houtzdale, Clearfield county. Operated by Reakirt Brothers & Co. David E. Conrad, manager. Worked partially on the single-heading system. Ventilated by small furnace. This company has two drifts in operation. In one the pillars are being drawn back. The other has been a drift of difficulties. It has passed through several hands, and has generally been considered among coal men, a poor speculation. It has been full of clay veins, and faults running through it, making it a difficult piece of work to manage, and, of course, ventilate properly.

Mr. Reakirt has secured a piece of land back of his work with some good coal in it; and during my last examination, I found they had driven the headings into it, and were opening up a very nice piece of work. Mr. George Gould, the inside boss, was busy making his arrangements to have this part of the mine properly ventilated. An examination showed, with one or two exceptions, a very good current of air around the face of the mine. Mr. Gould makes a very good mine superintendent, and deserves credit for the many difficulties he has overcome in the Penn mines.

BEAVER RUN MINES.

Located two miles above Houtzdale, Clearfield county. Operated by the Beaver Run Coal Company. T. C. Donnelly, mine superintendent. Ventilated by furnace. As stated in my former report, this mine changes hands so often, it is almost impossible to get one set of operators long enough in possession of the mine, to make any arrangements to have the mine put in proper order, so that there would be some systematic way whereby the mine can be properly ventilated. Mr. Donnelly informs me the present company intend to put the mine in proper shape, and work it as it should be worked.

The mine, it is true, had some difficulties to overcome in the form of a large fault that runs through the field of coal, but with proper management that can be overcome, and the mine put in good working order.

An examination of the mine showed the air to be very good, with the exception of one or two places, but this is not reliable, unless air-ways of a permanent nature are made. Mr. Donnelly is hard at work doing all in his power to get his ventilation of the mine all right, and he stated to me no pains should be spared in doing it.

GOSS RUN MINES.

Located on Goss Run, near Houtzdale, Clearfield county. Operated by Berwind, White & Co., W. A. Crist, general manager, Peter Cameron, superintendent and mining engineer. Ventilated by furnace, and worked on the single-heading system. But very little change has been made in this mine. It is worked very systematic, good air-ways are found all through the work. Proper doors and brattice are kept up, and all the arrangements for the proper ventilation of the mine kept in good order. Mr. Peter Cameron has planned the work, and it is faithfully carried out by William Pollock, who has charge of the inside department. An examination of the mine showed the air to be well kept up to the face of the work, each room or heading having a fair supply.

OCEAN MINES

Operated by John Whitehead & Co. Located on Goss Run Branch railroad, near Houtzdale, Clearfield county. Ventilated by furnace, and worked on the single-heading system. A. G. Spears, manager. This mine has been doing a large business for a number of years, and Mr. Whitehead, one of the company, looks after all the details in connection with the mines in person, and with his assistant, A. G. Spears, keeps a sharp look after the proper ventilation of his mine. An examination showed the arrangement for ventilating the mine good, proper doors and brattice, all kept in good order, so that the air is not allowed to escape until it had reached the face of the work. Two drifts are in operation, ventilated by one furnace, one receiving the air at its mouth, the other by an opening at the back of the work; by that way of ventilating, each drift is ventilated separately, although by the same furnace.

Mr. Whitehead is one of the most through-going and practical coal operators in the State. He started in Clearfield county with the Ocean mines, and has now the Atlantic and Pacific mines. His Atlantic mine bids fair to be one of the largest mines in Clearfield county. The drift, a double one, enters a very large field of good coal over five feet in thickness, containing from surveys made, over two thousand acres of unbroken coal land. John Whitehead & Co., will truly have an Ocean of coal land in Clearfield county, and with the Atlantic and Pacific to sail in, there will be no danger of their coal ship being stranded.

WEBSTER MINES.

Operated by the Webster Coal Company, Limited, located on the Goss Run Branch railroad, near Houtzdale. Philip Hartman, superintendent. Ventilated by furnace, and worked on the single-heading system. Since last reported, very few changes have been made in this mine. The two drifts, as reported, are yet working, each having a good ventilating furnace. An examination of the work showed that Mr. Hartman, the manager of the mine, has strictly adhered to his original plan of ventilating the mine. The work is well laid out, and his arrangements for ventilation show he has given the subject some attention. I found a very good current of air circulating around the face of the work, each heading having its proportion of air, and not a rush up one heading and but very little in another. Mr. Hartman has arranged his air ways, doors, and brattice so as to give an equal distribution of air through the mine. The mine, taken as a whole, is in a very good condition, and I trust will be found so in the future.

EXCELSIOR MINES.

Operated by Fisher & Miller. Located on Goss Run Branch railroad, near Houtzdale, Clearfield county. Thomas Richards, superintendent. Ventilated by furnace, and worked on the double-heading system. One drift in operation.

The ventilation of this mine requires great care on the part of the inside boss, to keep the air-ways intact, on account of the long distance the air has to travel. The territory in which the drift is put in is very narrow, the headings are driven a long distance to open up the work, and as a result, the air has to be conveyed a long distance to the face of the work. Mr. Thomas Richards has taken a great deal of pains to see that the air-ways were kept in good order. The mine has a good furnace, large enough to ventilate the entire work thoroughly, and by keeping the air-ways intact, there can be no trouble in having the mine properly ventilated. During my last visit, I was much pleased to see Mr. Richards take so much interest in the ventilation of his mine. At the time of my visit, he was making a new air-way to prevent any break in the current before it reached its destination, and attending to several minor details, in connection with the ventilation. And as a result of this personal attention, I found a good current of air at the face of the mine. The work is very well arranged,

and by proper attention to the ventilating doors, which should be carefully closed after the cars and men pass through them, there will be no trouble with the ventilation.

EUREKA NO. 2 MINES.

Operated by Berwind, White & Co. Located two miles above Houtzdale, at the terminus of a branch road, leading off the Goss Run branch railroad.

This mine was opened last summer, and consists of two well put in drifts. The drifts lead into a good seam of coal, and, I am informed, quite an extensive one. The branch road was made exclusively for this mine, and was a difficult one to lay out, owing to some very bad laurel swamps, but through the engineering skill of Mr. Peter Cameron, the mining engineer of the company, who personally laid the road out, the difficulty was overcome.

I paid a visit to this mine soon after they had got the drifts in the coal. The main headings and a few cross headings were under way, but not much room work opened. I was much pleased with the general plan of the work, and especially that part pertaining to the ventilation of the mine. I found a large first-class ventilating furnace well built throughout, and over cast over the main heading, carrying the foul air from the men in the two drifts to the furnace. The plan of the work is excellent, every arrangement made to have a properly ventilated mine. The same may be said of the outside department, for the shutes and tipple are first-class in every respect. To Mr. Peter Cameron the company are indebted for the excellent and well-planned work, both outside and in the mines.

MAPLETON MINES.

Located on the Laurel Run branch of the Clearfield and Tyrone railroad, two miles from Osceola mills, Clearfield county. W. A. Crist, general manager; John Allan, mine superintendent. Ventilated by furnace. Worked on the single-heading system. One drift in operation. Mr. Allan has got this mine in good order. I found a very good current of air circulating around the face of the work, with the exception of one heading, that was going to the dip. A few rooms or breasts did not have the same amount of air as the balance of the work, but this would not last long, as a communication would soon be made with the main current, giving that part of the work all the advantages of the rest.

Mr. Allan takes considerable pride in having his mine well ventilated and properly drained, and deserves credit for what he has done in that direction. Proper air-ways are driven, and the air is kept intact with good brattice and doors, until it reaches its destination, where it is not allowed to scatter until all are supplied.

LAUREL RUN MINES.

Located on the Laurel Run branch railroad, Clearfield county. Operated by Nuttal & Bacon. John Nuttal, general manager; Thomas W. Ash-

croft, mine superintendent. Mr. Ashcroft is a very conscientious man, and endeavours to do what is right. I did not find his mine in as good condition as last reported on account of a large fault he had come in contact with, and at the time of my visit was endeavoring to get the air circulated back of it. When he gets this arranged he will have no trouble as he understands his business and is anxious to do what is right. "Where there is a will there is always a way."

LOGAN MINES.

Located on the Laurel Run branch railroad, Clearfield county. Operated by H. J. Smith & Co. T. M. Simpson, manager; J. B. Young, mine superintendent. This mine has caused me a great deal of trouble from time to time. The mine was not properly opened, most of the work lying to the dip and no means to drain it, and as a consequence the operator that opened it disposed of his interest as soon as possible, and from that time it has continually changed hands, each one getting all they could out of it, and doing as little in the way of improvement as possible.

Soon after it came in possession of the present parties I paid it a visit, and found it in a bad condition; the mine poorly drained and the ventilation not such as it should be. Mr. Smith, the operator, was up at the mines and I informed him the ventilation of the mine required a new and larger furnace, and a large amount of work would have to be done on the roads to get them properly drained. He told me he was fully aware of the bad condition of the mine and was up for the purpose of getting things changed, and he was as good as his word; before I left that region a good furnace had been put in, and the road is getting cleaned and properly drained. It is to be hoped that Mr. Smith and his company will hold the mine for some time, and that it may be properly ventilated and drained.

Mr. Young, who has charge of the inside work, has the reputation of being a competent inside boss, and at this mine he will have a chance to put his knowledge into practice.

READING MINES.

Operated by Liveright & Co. Located on the Laurel Run branch railroad. Henry Liveright, manager. Ventilated by furnace. This mine has not been in operation all the time, but at present is doing a pretty fair business. An examination of the mine showed a very good current of air, but for want of proper brattice it did not all reach the face of the work. Mr. L. T. Riley, the mine superintendent, stated that he was fully aware of that fact, and had asked for lumber to put up the necessary brattice. I at once requested that lumber be furnished, and that under no circumstances should the ventilation of the mine be endangered for want of it.

GLENWOOD MINES.

Located on a branch of the Tyrone and Clearfield railroad, Clearfield county. Operated by Coulter & Huff; C. Campbell, general manager, C.

R. Colburn, superintendent of mines. Ventilated by furnace, and worked on the single-heading system. This company have two drifts, only one at present in operation. With this mine I have had but very little trouble. Mr. Colburn, from the time of my first visit, has gone on improving the condition of the mine. He is anxious to do what is right, and has spared himself no trouble to get his mine in a proper condition, both as to ventilation and drainage. During my last visit, arrangements were made to sink a shaft nearer the back of the work, and put in a larger furnace, as the present one is too small.

COLORADO MINES.

Located on a branch of the Tyrone and Clearfield railroad, Clearfield county. Operated by A. & W. H. Barlow. This is a new mine, and at the time of my visit was in but a short distance. I stated to A. Barlow, manager of the mine, that he should, without delay, enlarge the air-shaft, and put in a furnace, and have his mine properly ventilated as the work advanced. This he said he would do at once, and endeavor to see that his mine was kept up to the requirements of the law.

SHAMOKIN MINES.

Located on a branch of the Tyrone and Clearfield railroad, Clearfield county. Operated by George Robertson. This, like the above, is a new mine, just opened, and in but a short distance. A very good air-shaft has been put down, and in a conversation with Mr. Robertson, he stated a ventilating furnace should be put in immediately, and all arrangements made to have the mines properly ventilated.

LANCASHIRE MINES.

Located on a branch of the Tyrone and Clearfield railroad, Clearfield county. Operated by Campbell, Tucker & Co.; Thomas Barnes, manager. This is another mine of several lately opened on this branch of the Tyrone and Clearfield railroad. The mine is but a short distance in, and has a good air-shaft. Mr. Barnes, the manager of the mine, stated a furnace should be put in without delay, and all other necessary arrangements made to bring the mine up to the requirements of the law.

LEONARD MINES.

Located on a branch of the Tyrone and Clearfield railroad, Clearfield county. Operated by J. T. Leonard. John Ashcroft, manager. This is an old mine re-opened under another name. The drift to a certain extent is a tunnel, as it goes through a hill and open at both ends. Natural ventilation is used, a current of air passing through the hill sufficient to ventilate the mine, it being small and but few men working in it. I told Mr. Ashcroft if he should enlarge his work and employ more men, I should expect a furnace put in the mine with a good air shaft, and all the necessary arrangements made to ventilate the mine properly.

DERBY MINE.

Operated by Barnes & Bro. Located on a branch of the Tyrone and Clearfield railroad. Thomas Barnes, manager. This mine is an old one, but for several years has not been worked much. At one of my former visits I informed Mr. Barnes that when his mine started up I should expect him to put a proper air shaft down, with a good ventilating furnace, and other arrangements to ventilate his mine. When visited last the mine had commenced operations, and an air shaft put down, but owing to a mistake of the mining engineer, forty-one yards of heading would have to be driven to reach it; this Mr. Barnes stated was the cause of the delay or the furnace would have been in at the time of my visit. An examination of the mine showed a feeble current of air passing around the face of the work, showing that the brattice and doors had been neglected and wanted repairing, a very fair current was found at the inlet, but from the defects stated above did not reach the face. Mr. Barnes said as they now fairly started and the coal trade was increasing, he should at once have all the air-ways, brattice, and doors, with all that pertained to the drainage and ventilation of the mine, repaired, and put in order, and in the future I would see the mine in a proper condition.

MORRISDALE MINES.

Located at the terminus of the Morrisdale branch of the Tyrone and Clearfield railroad, Clearfield county. Operated by R. B. Wigton; W. H. Wigton, general manager. Ventilated by furnace, and worked partially on the double-heading system. The company have four drifts in operation. Two of them have been lately put in. Mr. R. B. Wigton and his son have shown themselves to be possessed of a large amount of perseverence in overcoming the many difficulties in their mines at Morrisdale, and deserve credit for the valuable explorations they have made, doing much to solve the geological problem of Clearfield county.

Mr. W. H. Wigton, the manager, has, at all times, taken an interest in the proper ventilation of the mines under his charge. An examination of their mine showed that every arrangement has been made, to properly drain and ventilate the mine. Good doors and brattice are found in all parts of the work, and the air well distributed around the mine. In the two new drifts, I found good air-ways, and the air current kept intact up to the face of the work.

Drift No. 1 is nearly worked out. The pillars are being drawn back, which makes it a difficult task to ventilate properly; but no means are spared to overcome any difficulty that may arise.

DECATUR MINES.

Operated by John Nuttall & Co. Located on the Morrisdale branch of the Tyrone and Clearfield railroad, Clearfield county. John Nuttall, general manager. Ventilated by furnace, and worked on the single-heading system. This company are at present operating one drift.

Mr. John Nuttall has done all that is possible to have his mine properly ventilated and drained. He has spared no expense in his plans for ventilation. A good air-shaft at the back of his work was put down, and a well built ventilating furnace put in, large enough to ventilate a mine as large a again. In a word, I must give Mr. Nuttall credit for making every arrangement to give his men plenty of fresh air. But, after all, the arrangements are made for a proper ventilation of the mine. The rest depends on the good management of the inside boss.

During my last visit to this mine the inside boss, Mr. Charles Long, was absent at home sick, and an examination of the mine showed that the headings had been allowed to get ahead of the air current; and to make matters worse, several rooms or breasts had been turned inside the current. I also found three or four rooms ahead of the air current, down in the dip part of the mine, which could have been avoided by simply putting an air-hole through a pillar. Now in a mine where all the advantages to ventilate are so complete as Mr. Nuttall has them, it was gross negligence on the part of those having charge of the inside department of the mine, a negligence that Mr. Nuttall would deprecate very much, as he was anxious to have his mine come fully up to the requirements of the law. I trust in the future this neglect will not be repeated, as there should be no trouble in ventilating this mine.

SANDY LICK MINES.

Operated by the Sandy Lick Coal Company. Located near Du Bois, on a branch road leading from the Allegheny Valley railroad, Clearfield county. William Sharpe, general manager. Ventilated by steam jet and small fire. Worked on the single heading system. The mine is drained by a steam pump, as it is on the dip of the vein. The mine is well drained, except sometimes during the spring and fall, when a few of the extreme dip rooms are over-flowed, but soon drained by the powerful steam pump. An examination of the mine showed a very fair current of air circulating around the face of the work. At present the amount of air at the inlet is sufficient, but if the work is enlarged a good ventilating furnace will be needed. A little more attention should be given by the inside boss to the doors and brattice, as I found some of them in much need of repair. The mine, taken as a whole, is in a very good condition. With proper attention to the air-ways, doors, and brattice, there should be no trouble in the ventilation of this mine.

HILLDRUP MINES.

Located near Du Bois, on the line of the Allegheny Valley railroad, Clearfield county. William Sharpe, general manager; Robert Easton, mine superintendent. This is a new mine lately opened. A good air-shaft has been put down with a ventilating furnace. The mine is in but a short distance, and of course the ventilation all right for the present; and I have no fear for the future, as Mr. Easton is an old and experienced mine superintendent.

ROCHESTER MINES.

Located on a branch road leading from the Allegheny Valley railroad, Clearfield county. Operated by the Rochester Coal Company. F. A. Bell, general manager; Arthur McHugh, superintendent of the mining department. Ventilated by furnace. Worked partially on the double heading system. This mine is quite an extensive one, and doing a large business. The company—Bell, Lewis & Yates—are energetic and thoroughgoing, having built up a large business in a short time, entering largely into the manufacture of coke. The mine has a good ventilating furnace, and the arrangements for ventilating the mine very good. I found very good doors and brattice; and an examination showed a very good current of air well distributed through the work. In some of the rooms that were driven a long distance up, the air current was slack; but take the mine as a whole, the ventilation and drainage was very fair.

SNOW SHOE MINES.

Located at Snow Shoe, at the terminus of the Bellefonte and Snow Shoe railroad, Centre county. Operated by the Bellefonte and Snow Shoe railroad Company. Daniel Rhoades, general manager, John Somerville, general superintendent of the mining department. Ventilated by furnace, worked on the single-heading system. This company have three drifts in operation, and since my last report, a good ventilating furnace has been put in. An examination of the mine showed that very good arrangements had been made, as I found the air-ways all right, and proper doors and brattice, so that the air-current was kept intact. Mr. Somerville is an old and experienced hand in the mining business, and with his valuable assistant, will have very little trouble in keeping the mine properly ventilated and drained. Mr. Alexander Houston, who has direct charge of the inside work, has overcome many difficulties in the shape of very bad faults, but has succeeded in keeping the air up to the face of the work. Taking the work all through, the ventilation and drainage is very good.

BLACK DIAMOND MINES.

Located at Powelton, Centre county, on the line of the Tyrone and Clearfield railroad. Operated by William J. Jackson; Thomas Young, superintendent of mines. One drift is in operation. Since last reported, a ventilating furnace has been put in, but it is a very poor one, and will have to be rebuilt. Since Mr. Young has taken charge of the mine, he has given it a thorough overhauling, brattices secured, doors repaired, and air-ways cleaned out. An examination showed that the air was kept pretty well up to the face of the mine, and with the exception of two or three rooms, a fair current of air was found in the balance of the work; holes were cut through the pillars at proper distances, a *desideratum* in the proper ventilation of a mine.

ROBERTSDALE MINE.

Operated by the Rockhill Iron and Coal Company. Located at the terminus of the East Broad Top railroad, Robertsdale, Huntingdon county.

A. W. Sims, general manager. James Findley, superintendent of mines. Ventilated by furnace, worked on the single-heading system. The company are at present operating two drifts and a shaft. The shaft opens up a large coal territory, and in connection with one of the drifts will be the main field of operation. The present mine has been worked over a large amount of ground, and requires great care to keep the air intact from the inlet to the face of the mine. There is a large amount of abandoned work that must be brattieed up and kept in order, and a large number of doors to attend to, so that too much care cannot be taken. In a large part of the work the ventilation is effected by double-heading, one above the other, the vein being separated by natural strata of slate, three and four feet in thickness. Holes are cut through this every few yards to allow of a circulation. The rooms are worked on the same plan. An examination of the work showed that the mine was intersected by a large number of headings, requiring a large number of doors, and where these are not properly attended to, the air will escape, and only a feeble current reach the face of the mine.

This I found was the great trouble in the proper ventilation of this mine Mr. Findley seemed to understand the difficulty and stated to me that he would try and concentrate his air-ways and dispense with a large number of doors, avoiding as much as possible any break in the air current. In such a mine as this a competent man should be employed to look after the air-ways, doors, brattiee, &c., as the mine boss will not be able to watch over them at all times and attend to his other duties. The inlet and outlet of the drifts showed a current of air, more than sufficient to ventilate them properly, and when Mr. Findley has all his arrangements made he will have no trouble in ventilating the mines at Morrisdale properly.

CARBON MINES.

Located near Broad Top City, at the terminus of the Broad Top and Huntingdon railroad, Huntingdon county. Operated by Mears Brothers. J. F. Mears, manager. Worked on the single-heading system. Natural ventilation. This mine is small, and at no time of the year employs a large number of men. Very few men are employed in any of the mines in Huntingdon county, except at Robertsdale, that being the largest work in the county. An examination showed a very good current of air at the face of the mine, and as the work is not large it can be properly ventilated with a little attention to the doors and brattiee.

If some of those having charge of larger mines would take the same interest in ventilating them that Mr. Mears does it would materially aid the inspector in his work.

MOREDALE MINES.

Operated by Reakirt Bros. & Co. Located on the line of the Broad Top and Huntingdon railroad, Huntingdon county. Natural ventilation. Worked on the single-heading system. David E. Conrad, manager; James Williams, mine superintendent. The owners of this mine having been working

under a great many difficulties. For the last two years the vein has been very changeable, running sometimes almost out, the rock taking its place, making it a difficult and expensive experiment to follow up the vein, and it is to be hoped success will attend the experiment. Under these circumstances the inside boss, Mr. James Williams, had a difficult task before him to ventilate and drain the mine. but an examination of the work showed a very good current of air at the face of the mine, and with the exception of two rooms the air was very good, and when I take into consideration the many difficulties to overcome, Mr. Williams has done very well.

FISHER MINES.

Located on the line of the Broad Top and Huntingdon railroad, Huntingdon county. Operated by William H. Sweet & Co. Superintendent of mines, John Sweet. This is an old mine, formerly worked by Fisher & Miller. A small ventilating furnace is used, but I found the air-ways too small, and requested that they be enlarged; also, some doors and brattice to be put up. With this arrangement, a fair current of air can be sent around the face of the mine. The work is small and will not require extra exertion to keep the mine at all times properly ventilated and drained; because a mine is small and does not employ a large number of men, it is no reason why it should not be properly ventilated and drained.

HOWE MINE.

Operated by William H. Sweet & Co. Located on the line of the Broad Top and Huntingdon railroad, Huntingdon county. This is a small work; two drifts are in operation, one of them going to the dip. A rock tunnel was driven a long distance to ventilate and drain the mine properly. But few men are at present employed, and in consequence little trouble is experienced in thoroughly ventilating this mine. Natural ventilation is used and will do very well for a few men, but as the work is enlarged and more men employed, a larger air shaft and ventilating furnace will have to be put in, and as the coal trade in Huntingdon county is increasing, the small works will be enlarged, which will necessitate many improvements in connection with their ventilation and drainage.

HORSESHOE MINES.

Located two and a half miles from Kittanning Point, on the Pennsylvania railroad, Blair county. Operated by S. C. Baker. Andrew Patrick, general superintendent of mines. This mine is not large, Mr. Baker using most of the out-put for his furnaces. As stated in my former report, part of this mine was allowed to remain under water until a drain heading had been driven from the opposite side of the hill; that heading is now completed and the mine is at present well drained.

Since my first visit to this mine, Mr. Patrick has done much to improve the condition of the mine; the ventilation is greatly improved, and the drainage is now almost complete, and the mine, taken as a whole, is very well ventilated and drained.

GLENWHITE MINES.

Located three miles from Kittanning Point, on the Pennsylvania railroad, Blair county. Operated by the Glenwhite coal company. David McCoy, general manager. Ventilated by furnace. Worked on the single-heading system. Since my last report of this mine, a good many improvements have been made, and the mine placed in a better condition, as to the ventilation and drainage. I found the air-ways nearer to the face of the mine than heretofore. Also the brattice and doors in a better condition, and, taken as a whole, the mine is in a very fair condition.

Mr. McCoy, the manager, stated he should do all he could to bring his mine up to the full requirements of the law.

BENNINGTON MINES.

Operated by the Blair Iron and Coal Company. Located at Bennington, Blair county, on the line of the Pennsylvania railroad. The company have one shaft and a drift in operation. Ventilated by two six-foot fans, known as the Champion ventilator, or Murphy fan. Worked on the single-heading system.

Mr. John Fulton, general manager of the mining department, and mining engineer of the company, has made some very important changes in this mine, both as to the ventilation, (very important,) and haulage. An examination of the mine showed the plan of the work good, and the arrangements for ventilating the mine first-class. With the Murphy fans, that will give over one hundred thousand cubic feet of air per minute, there should be no trouble in the proper ventilation of every part of the mine. If Mr. Meagher, the superintendent of the mine, will see that his rooms and headings are not allowed to be driven ahead of the air-current, (for there is an abundance of air in the shaft and drift, more than sufficient to ventilate the mine thoroughly,) he will have no trouble with Bennington shaft, and it will stand first-class in every respect.

I examined the hoisting machinery of the shaft, and found that it was all in first class order. A second outlet to the shaft is furnished at the level of the vein, by a drift connecting with the shaft. All kept in good order for traveling.

PORTER MINES.

Operated by Porter, Deniston & Co.; located one mile from Bennington, on the line of the Pennsylvania railroad. This company have at present one shaft in operation; C. H. Porter, general manager; John Leonard, superintendent of mines. Considerable progress has been made during the last year in the drainage and ventilation of this mine. The air-ways, doors and brattice are all in a better condition, and I am much pleased to find Mr. John Leonard, of the inside department, taking more pains to keep the air current up to the face of his work, if he will not drive his headings too far ahead of the air, and above all allow no rooms to be turned ahead of the air current. Mr. Leonard is a very conscientious man, and

is anxious to do what is right and just, and is ever on the alert in all that pertains to the management of the mines under his charge.

The general plan of the work is by the direction of Mr. C. H. Porter, who attends to all that is connected with the mines in person, going down the shaft and giving directions as to how it shall be managed, thus seeing that the work of which he is an owner is properly conducted. I mention this here because I believe it would be to the interest of a large number of operators to look after and have a personal supervision over their work. They would then see for themselves what the Inspector is trying to get them to understand, viz: That their mine is not always fully up to the requirements of the law.

LLOYD'S MINES.

Operated by the Bell's Gap Railroad Company. Located at Lloydsville, on the Bell's Gap railroad, nine miles from the line of the Pennsylvania railroad. R. G. Ford, general manager. Thomas Dawson, mine superintendent. Ventilated by a twelve foot fan, worked on the single heading system. This mine has been working under a great many difficulties, some of them mentioned in my last report; but during my last examination I was much pleased to find most of them overcome, and the mine in a very good condition. The fan gives more than sufficient air for the mine, and Mr. Dawson has taken good care of it, for I found a good current at the face of the work.

SONMAN MINES.

Operated by W. H. Piper & Co. Located on Ben's Creek, near Lilley's Station, Cambria county, half a mile from the line of the Pennsylvania railroad. John Leahey, superintendent. Ventilated by furnace. Worked on the single-heading system. This company have two drifts in operation, both ventilated by one furnace. An examination showed a very fair current of air, well distributed through the work. At the present time the air has to travel a long distance, and requires a great deal of care to keep brattice and doors in repair. The rooms are also driven a long distance, and as a consequence the air has to be forced up a long distance before a return is made. Mr. Leahey is changing this, by having a heading driven that will cut off all the old rooms and re-open the entire work, and have the fresh air come direct from the inlet to the face of the mine. With this new arrangement of the work, Mr. Leahey will have his mine in good shape, and will have no trouble in having it properly ventilated.

BEN'S CREEK MINES.

Operated by S. H. Smith & Co.; located on Ben's creek, near Lilley's station, Cambria county, half a mile from the line of the Pennsylvania railroad; S. H. Smith, general manager; natural ventilation; Martin Leap, superintendent of mines; one drift in operation; the ventilation is effected by driving a heading out to the surface, as the work is all driven at right angles to the face of the hill, and as the air current becomes slack a head-

ing is driven parallel with the face of the mine, and, the distance being short, fresh air is brought direct to the workmen at the face. I found a difficulty in this mine that could be avoided by taking the necessary precautions in time. This was the heaving of the fire-clay bottom in the airways and headings. I found, on examination, that the pillars had been left too thin, and, as the top is a very strong one, the crush on the pillars was very great, causing the bottom to heave. This caused Mr. Smith considerable trouble, and could be partially avoided by leaving thicker pillars and draining the mine well.

MENTZER MINE.

Operated by E. W. Mentzer; located on Ben's creek, near Lilley's station, Cambria county, half a mile from the line of the Pennsylvania railroad; E. W. Mentzer, manager. This mine has been lately opened and at my last visit was but a short distance in, with two headings going and a few rooms turned. The ventilation at present is effected by communicating with S. H. Smith & Company's mine, the air passing in at the mouth of the drift, going around the work, and passing out at Smith & Company's drift. As soon as the work is enlarged and more men employed a good ventilating furnace will be needed. Just below Mentzer's mine, Dysart and Laughlin are putting in a stone tunnel to reach the vein. Several other parties are also about to open on Ben's creek. At this rate it will soon be a place where large shipments of coal are made.

WESTBROOK MINE.

Operated by the Cambria Mining and Manufacturing Company; located on Ben's creek, near Lilley's station, Cambria county, one quarter of a mile from the line of the Pennsylvania railroad. This is a new company, having just started. They have now finished putting down a very good shaft, the coal has been reached, and headings started to open up the work, and in a few months will be ready to ship coal. The hoisting arrangements are all first class, and the engines, gearing, &c., are all of the latest improved pattern. The company have not yet decided whether to use a fan or furnace to ventilate their mine. Mr. R. B. Westbrook has the general management, assisted by William Rodda, superintendent of mines.

LILLEY'S MINE.

Operated by Dysart & Laughlin. Located near Lilley's station, on the line of the Pennsylvania railroad, Cambria county. Daniel Laughlin, general manager; Thomas Leahey, superintendent of mine. Ventilated by furnace. Worked on the single heading system. This is an old mine reopened by the present company at considerable expense. A new gangway was driven, starting a short distance inside of the old drift, reaching the head of the work, cutting off all the old workings, and to a certain extent, opening up a new piece of work. A ventilating furnace was put in, but was too far from the bottom of the shaft, and did not draw well. I requested Mr. Leahey to remove it to a proper place, where it would do some good. An examination showed a very good current of air circulating

around the face of the mine with the exception of three or four rooms that needed some brattice and a door to direct the current, which Mr. Leahey had put up immediately. With some few alterations in the air-ways pointed out at the time, the mine will be found in a very good condition. Mr. Laughlin is one of those operators that believes in looking after his own work, and at once knows how to remove any difficulty. He wishes to have his mine come fully up to the requirements of the law, and is at all times willing to consult the inspector in relation to any deficiency in ventilation or drainage.

SOUTH FORK COAL WORK MINES.

Operated by the South Fork Coal Company. Located at South Fork, Cambria county, on the line of the Pennsylvania railroad. R. J. Hughes, general manager; E. J. Hughes, superintendent; Henry Dunmyre, superintendent of the inside department. This and one or two other mines in the same locality start and stop with the demand for coal in the market. At one time they will have but two or three men at work, at another quite a number are employed. Not one of the mines at South Fork are properly ventilated as the law requires them to be. This fall as the coal trade revived, a rush was made at South Fork, by the operators, to open up and commence operations. I paid them a visit at this time, and an examination of this mine showed, that while the ventilation was not really bad, the air-ways were out of repair, little or no attention being given to having the necessary doors and brattice put up.

Mr. Hughes stated to me the prospect looked good for a continuation of the present brisk trade, and they should at once put their mine in good condition, and have it properly ventilated. I requested him to do so without delay, and that he should also put in a good ventilating furnace. This request I afterwards communicated to him by letter. Several new openings have been commenced by other parties, and, from present indications, it looks as though South Fork would soon be the center of a large mining district.

ARGYLE MINES.

Located at South Fork, Cambria county, on the line of the Pennsylvania railroad; operated by the Argyle Coal Company; T. L. Jones, mine superintendent. This mine was not in operation at the time of my last visit to South Fork, but on a previous visit I found it in a poor condition. I was informed by the former superintendent that improvements had been made, but no ventilating furnace put in. I communicated with the superintendent by letter, stating I should expect a furnace put in the mine without fail when they started.

STINEMAN MINES.

Located at South Fork, Cambria county, on the line of the Pennsylvania railroad; operated by J. C. Stineman; J. C. Stineman, superintendent.

At the time of my last visit to this region the mine was not in operation. At a former visit I requested Mr. Stineman to put up the necessary doors

and brattice to direct the air-current. He informed me that he has made a great many improvements in the ventilation of his mine, but he has not yet put in a ventilating furnace. I requested him to do so, and on my return to my office I sent him a request to the same effect by letter. The Inspector will have to keep a close watch over South Fork as the coal trade revives.

STINEMAN MINES, NO. 2.

Operated by George B. Stineman & Co. Located one mile above South Fork, Cambria county, on the line of the Pennsylvania railroad. C. A. Dimond, manager. This mine is an old one re-opened. This fall a general revival of the coal trade took place. Old mines that have not been worked for years were re-opened. New ones were also opened up, thus indicating a general revival of business. These old mines re-opened are a source of trouble to the inspector, as a large amount of work has to be done before they are fit for men to work in. And I find such mines generally re-opened by parties who know very little about mining, or ventilating a mine, and thus it is very hard to have instructions carried out. This mine I found without the means to ventilate—no brattice, or doors, to say nothing about a furnace, the only return for the air being an old drift. After a thorough examination of the mine, I made arrangements to have some means provided to ventilate it without delay, which Mr. Stephen Dimond, who is looking after the inside work, stated should be done at once. He was anxious to have the mine properly ventilated, but did not know how to proceed until I had made this visit. He at once proceeded to action by ordering the lumber for brattice and doors, and I have no doubt will carry out my instructions. I also had an interview with Mr. George B. Stineman, one of the operators, and represented to him the condition of the mine, and that I should expect him to put a furnace in as soon as possible, and make all other necessary arrangements to ventilate his mine as it should be ventilated. Mr. Stineman said it was his wish that his mine should be brought up to the requirements of the law, and he should at once see that every arrangement was made to have my instructions carried out.

ARGYLE NO. 2 MINES.

Operated by Coulter & Huff. Located at South Fork, Cambria county, on the line of the Pennsylvania railroad. T. L. Jones, mine superintendent. This mine is a new one; one drift being put in, which, at the time of my visit, was about fifty yards in. The coal will be let down by plane, and, from present indications, will commence to ship coal next summer.

LUKE & HEITH MINE.

Operated by Luke & Heith. Located at South Fork, Cambria county, on the line of the Pennsylvania railroad. David W. Luke, mine superintendent. This is a new mine lately commenced operations, one drift is being put in, and, at the time of my visit, was in about sixty or seventy yards. The coal will be let down by plane, and Mr. Luke stated they intended to

do a pretty fair business next summer. I have made arrangements to have good ventilating furnaces put in these new works, and also in the old ones now re-opened.

MARTIN MINES.

Operated by J. C. Martin & Co. Located a short distance from Portage, Cambria county, on the line of the Pennsylvania railroad, J. C. Martin, general manager, David Patrick, mine superintendent. This is a new company just commenced operations. A branch road about a mile and a half from Portage reaches these mines, where a very large field of coal is found. See Second Geological Report, H.H.D., page 53–58. This extensive coal field will soon be opened up, and the little town of Portage before long be the center of a large mining district. Mr. Martin is at present putting in a good, substantial drift that will reach the main field of coal. This is intended to be their permanent drift, and Mr. Martin, and also Mr. Patrick, stated to me that every arrangement should be made to have this mine properly ventilated, and that no expense should be spared to make it a model mine. The company have not yet decided as to whether they shall use a fan or furnace in the ventilation of this work. Mr. Martin thinks that they will be able to do a large business next summer by pushing their drift ahead this winter. While their main drift is being pushed on, an experimental drift has been put in, and a few cars of coal per day taken out; but as soon as they get their main work opened this is to be abandoned.

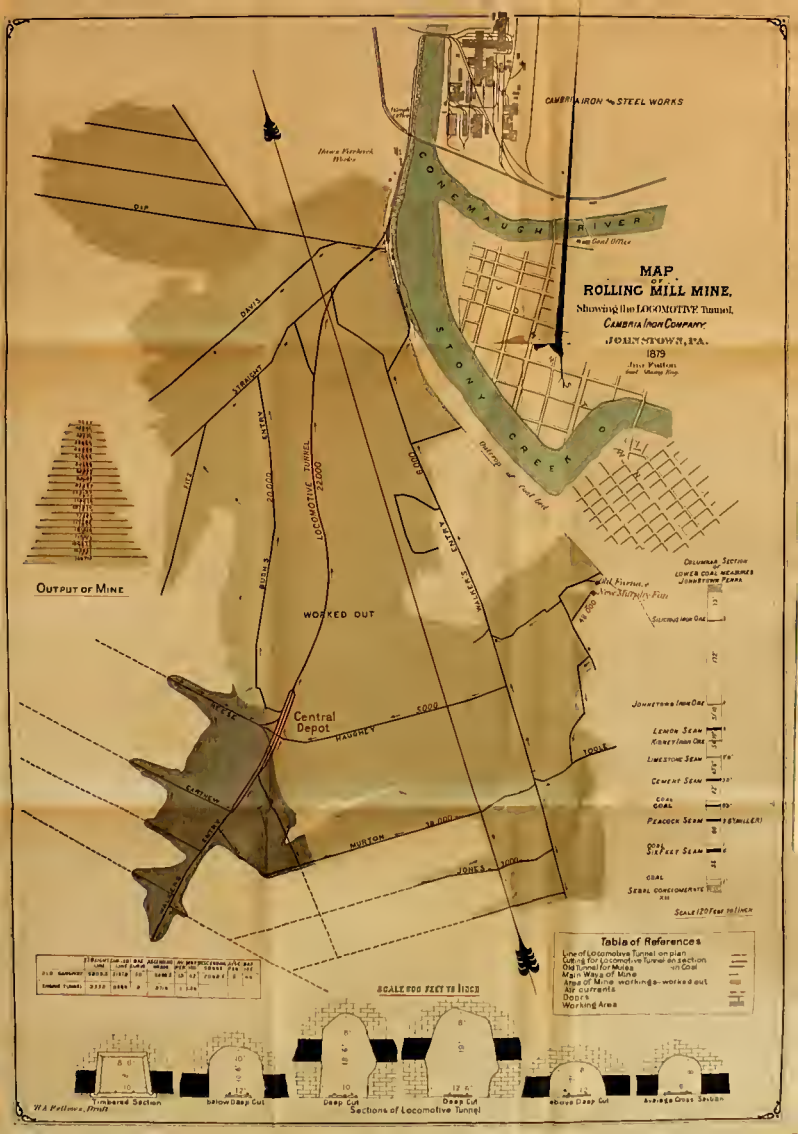
JOHNSTOWN MINES.

Located at Johnstown, Cambria county, at the foot of the Allegheny mountain (western slope,) on the line of the Pennsylvania railroad; operated by the Cambria Iron Company; John Fulton, general manager and mining engineer for all the mines under this and the Blair Iron and Coal Company; Mr. John Cameron, superintendent of mines. The following are the mines operated by this company at or near Johnstown: Rolling Mill mine, Conemaugh mine, Cushon mine. The large out-put of these mines is used at Johnstown in the manufacture of iron and steel at the well known works of this company.

Rolling Mill mine is the largest in operation, and has been in active operation for over twenty years, with a large out-put each year, and at the present has a larger out-put than at any previous time.

The mine is a very extensive one, but it is in first-class order. The long distance this mine is in, necessitated the hauling out of coal by other means than that of mule power. The result was a tunnel planned by Mr. John Fulton, and executed under the supervision of Mr. John Cameron, a full description of which was given in my last report from the pen of Mr. Fulton.

At the time of making out my last report I had not examined the tunnel after its completion, and did not give any report as to its condition, ventilation, drainage, &c. This fall I examined the mine and tunnel under very unfavorable circumstances, the temperature and condition of the at-


CAMBRIA IRON & STEEL WORKS
CONEMAUGH RIVER
STONY CREEK
MAP
OF
ROLLING MILL MINE,
Showing the LOCOMOTIVE Tunnel,
CAMBRIA IRON COMPANY.
JOHNSTOWN, PA.
1879
DIP
DAVIS
STRAIGHT
ENTRY
RISE
BUSH 3
LOCOMOTIVE TUNNEL 2500
5000
MULLEN'S ENTRY
WORKED OUT
Central Depot
DAUGHTY
5000
10000
MUNTON
JONES
OUTPUT OF MINE
COLUMNAR SECTION
LOWER COAL MEASURES
JOHNSTOWN SERIES
SOLID IRON ORE
JOHNSTOWN IRON ORE
LEMON SEAM
KIDNEY IRON ORE
LIMESTONE SEAM
CEMENT SEAM
COAL
PEACOCK SEAM
(SOMERSET MILLER)
COAL
SIX FEET SEAM
COAL
SEDAL CONGLOMERATE
SCALE 120 FEET TO 1 INCH
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Line of Locomotive Tunnel on plan
Cutting for Locomotive Tunnel on section
Old Tunnel for Mules
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Area of Mine workings-worked out
Air currents
Doors
Working Area
SCALE 100 FEET TO 1 INCH
Timbered Section
Below Deep Cut
Deep Cut
Deep Cut
Above Deep Cut
Average Cross Section
Sections of Locomotive Tunnel
W. A. Pellows, Draft

mosphere outside being against the ventilation of a mine; and of course a mine found to be well ventilated under these conditions would be all right at any other time. The means taken to ventilate is a double fan eight feet in diameter, driven by a stationery engine, twenty-horse power, known as the Champion ventilator, or Murphy fan. This fan, when at its maximum speed, will give one hundred and seventy-five thousand cubic feet per minute. The air is driven by the fan to all parts of the work, and finds its outlet through the tunnel to the mouth of the drift. I took several measurements of this tunnel, and asked Mr. Fulton if he would furnish me with a sectional view and measurements, as taken, which he kindly did, and the same will be found to accompany this report. An examination of the air-ways, brattice, doors, &c., was convincing proof that the whole arrangement for the ventilation of the mine was planned by a person having a thorough knowledge of the laws that govern air in motion. All air-ways were driven with a view to avoid all possible friction, well built brattice, and substantial doors.

The plan of the work is the single heading system, with ventilating holes through the pillars from room to room, and with the ventilating doors at the proper headings, giving a good current of air around the face of the work. The ventilating doors are so well arranged that each heading gets its exact proportion of the rushing current from the fan. The air after passing the face of the rooms of each heading enters the tunnel at several points along the sides, and at the head of the "central depot." A reserved current of air, not used for the mine, but for the use of the tunnel, enters it below the "depot," as the concentrated current, at the central depot, where the cars are oiled and the trains are made up for the engine, would be very inconvenient for the men at work there.

I examined this tunnel very carefully, as I wished to ascertain a few facts that have a very important bearing upon the use of the locomotive in a mine. First, the size of the tunnel, and whether the height and width of the tunnel is essential where a locomotive is used. Second, the amount of air that is essential. Third, the velocity of the air current through the tunnel. Several attempts to use the mine locomotive by superintendents of mines in my district have been made, and with three exceptions have all proved failures. The gases from the combustion of the coal producing asphyxia when inhaled into the lungs. These failures can be traced to two causes, first, the size of the tunnel through which the locomotive passed was too small; second, there was not sufficient air passing through the tunnel to carry off the accumulated gases, or dilute them sufficiently so as not to be dangerous to inhale. These failures we find repeated again and again, when a little knowledge of the laws that govern gases in their free state, would have demonstrated the fact that any attempt to use a locomotive under ground, without sufficient air or room for the expansion of the gases, must prove a failure. The following result of an examination of Rolling Mill mine tunnel, will give a more clear idea of the size and current of air necessary to place a tunnel in fit condition for a locomotive to run

in: The tunnel is one mile and a quarter long, and was driven so as to make a uniform gradient. The tunnel is not uniform in height or width, varying in height from nine feet to twenty or over. The width is more uniform. To find out the condition of the air in the tunnel, when the locomotive was running in it, I examined it, first, by riding in with the locomotive; second, by walking the entire length of the tunnel, the locomotive meanwhile passing in and out several times, giving me an opportunity to inhale the air of the tunnel under all circumstances.

In riding behind the locomotive going in the mine, you feel no evil effects from inhaling the air impregnated with the gases and steam from the exhaust of the engine. They are almost instantly diluted. The swift current of air passing through the tunnel in a large body soon causes a diffusion of the gases, rendering them harmless. In walking out—the engine passing me several times—I experienced the same freedom from any injurious effects of the gases or steam when inhaled freely into the lungs. After the engine passes you, the tunnel is filled with the condensed steam for a minute or two, but after that, the air is comparatively free from gases or steam. It is true, you may find the atmosphere of the tunnel a little foggy, but not in any sense of the word injurious. From measurements taken of the air in the tunnel, the following extracts are given:

Amount of air coming in at "central depot," from where the miners are at work, 49,920 cubic feet per minute.

Extra current of air, coming direct from the fan, 16,800 cubic feet per minute.

Total volume of air per minute passing out of tunnel, 66,720 cubic feet.

Velocity of air in tunnel, 535 feet per minute.

Taking this tunnel as a basis—and it is above the average of tunnels where locomotives are used, both in size of tunnel and the volume of air passing through it—we draw the following conclusions: That a tunnel where a locomotive is used should be no less than nine feet in height, and nine or ten feet in width. Under no circumstances would I consider it safe to use a locomotive in a tunnel of less dimensions. For that sized tunnel, the volume of air should be no less than 45,000 cubic feet per minute, with a velocity of from 500 to 600 feet per minute. Under these conditions a locomotive could be used successfully. This can be taken as the minimum, both as to the size of the tunnel and the amount of air to pass through it; and it is to be hoped that mine superintendents, in the future, before they try to use the locomotive in their mine, will investigate the matter thoroughly, and thus avoid a failure.

In concluding my remarks on the examination of Rolling Mill mine and tunnel, I would state I am much pleased with the entire arrangements and plan for ventilating the mine and tunnel, and would, if space permit, go more into the details, tracing the air from the time it leaves the fan, passing into the mine, along the air-ways, reaching the various headings, and rooms, imparting its life-giving oxygen to each man and animal, then entering the tunnel, diluting the noxious gases formed from combustion of the coal on

the engine, and finally after collecting all the noxious vapors of the mine, taking its final departure at the mouth of the drift.

Cushon mine. This is a small mine recently opened, but as the coal territory that the drift is going into has been worked over a number of years ago, and no map of it to be found, the drift, to a certain extent, is an exploring one. At the time of my visit one or two headings had broken into some old work, of which no record could be found. Therefore, under these circumstances, each heading is an exploring one. The mine is ventilated by furnace and worked on the single heading system. The mine has to be continually watched to keep the air current intact, on account of the rooms or headings breaking into the old works, which require prompt attention, for the break must be bratticed up immediately.

Conemaugh mine is located three miles above Johnstown, and supplies one of the furnaces of the Cambria Iron Company with coal. The mine is not large, but well laid out; the headings are driven straight and the rooms turned at right angles, making square work. The ventilation is effected by a small furnace, which will be enlarged as the mine is opened up. I found a good current of air in all parts of the mine; the arrangements for ventilation are excellent; good air-ways, with brattice and doors in good order, showing that the ventilation of the small mines of the Cambria Iron Company are as faithfully looked after as the large Rolling-Mill mine, with its large double Murphy fan.

In taking leave, for the present, of Johnstown and its mines, I wish to tender my thanks to Mr. John Fulton, general mining engineer for the company, for bringing the mines that are under his charge in my district, up to their present high standard in the mode in which they are worked, ventilated, and drained; and for the prompt manner in which all the requirements of the law have been carried out. To Mr. John Cameron, superintendent of mines, I am under obligations for the manner in which the work has been conducted, and the care he has taken in the management of the mines. All the ventilating apparatus has been kept in the best of order, and the ventilation of the mine satisfactory. The working part of the mine has also been kept secure and in the best possible condition.

LESKIE MINES.

Operated by J. E. Leskie & Co. Located three miles from Osceola Mills, Clearfield county, reached by a branch road from the Osceola and Houtzdale branch of the Tyrone and Clearfield railroad. This branch road was built expressly to open up a large coal territory, of which Mr. J. E. Leskie is the pioneer operator. The vein Mr. Leskie is opening up is the celebrated Moshannon vein, and from surveys made Mr. Leskie has a large field of coal before him. He is pushing the work on rapidly and next summer will be able to make some large shipments of Clearfield's best coal. Mr. Don St. George Fraser, the mining engineer of the company, informs me that a good ventilating furnace is to be put in and every arrangement made to ventilate the mine properly.

TABLE I.—*Showing location of Collieries in the Third Bituminous Mine District.*

NAME OF COLLIERY.	Name of Company.	Location—County.	Name of Superintendent.	Post Office Address.
Barclay,	Towanda Coal Company,	Bradford,	F. F. Lyon,	Barclay, Bradford county.
Long Valley,	Long Valley Coal Company,	do.	G. Macfarlane,	Towanda, Bradford county.
Carbon Run,	Schraeder Coal Company,	do.	R. A. Abbot,	Carbon Run, Bradford county.
Bennington Shaft,	Blair Iron and Coal Company,	Blair,	John Fulton,	Johnstown, Cambria county.
Porter Shaft,	Deuniston, Porter & Co.,	do.	C. H. Porter,	Hollidaysburg, Blair county.
Horse Shoe,	S. C. Baker,	do.	Andrew Patrick,	Altoona, Blair county.
Glen White,	Glen White Coal Company,	do.	David McCoy,	do. do.
Rolling Mill,	Cambria Iron Company,	Cambria,	John Fulton,	Johnstown, Cambria county.
Gautier,	do. do.	do.	do.	do. do.
Cushon,	do. do.	do.	do.	do. do.
Conemaugh,	do. do.	do.	do.	do. do.
Woodvale,	Johnstown Manufacturing Company,	do.	do.	do. do.
Lloydsville,	Bell's Gap Railroad Company,	do.	R. G. Ford,	Bellwood, Blair county.
Sonman,	W. H. Piper,	do.	W. H. Piper,	Altoona, Blair county.
Benn's Creek,	S. H. Smith,	do.	S. H. Smith,	do. do.
Lilly's,	Dysart & Laughlin,	do.	Daniel Laughlin,	do. do.
Old South Fork,	South Fork Coal Works Company,	do.	E. J. Hughes,	South Fork, Cambria county.
Stineman,	J. C. Stineman,	do.	J. C. Stineman,	do. do.
Argyle, No. 1,	Argyle Coal Company,	do.	T. L. Jones,	do. do.
Argyle, No. 2,	do. do.	do.	do.	do. do.
Stineman, No. 2,	Stineman & Co.,	do.	George B. Stineman,	do. do.
Luke & Heist,	Luke & Heist,	do.	D. W. Luke,	do. do.
Westbrook Shaft,	Cambria Mining and Manufacturing Company,	do.	R. B. Westbrook,	430 Walnut street, Philadelphia.
Martin,	J. C. Martin & Co.,	do.	J. C. Martin,	Portage, Cambria county.
Mentzer,	E. W. Mentzer,	do.	E. W. Mentzer,	Hollidaysburg, Blair county.
Cameron,	Cameron Coal Company,	Cameron,	T. M. Williams,	Cameron, Cameron county.
Mount Hope,	Mt. Hope Coal Company,	do.	Jacob Elias,	do. do.
Snow Shoe,	Bellefonte and Snow Shoe Railroad Company,	Centre,	John Somerville,	Snow Shoe, Centre county.
Black Diamond,	W. J. Jackson,	do.	W. J. Jackson,	Osceola Mills, Clearfield county.
Sandy Lick,	Sandy Lick Coal Company,	Clearfield,	William Sharp,	Du Bois, Clearfield county.
Hilldrup,	do. do.	do.	do.	do. do.
Clearfield,	Clearfield Coal Company,	do.	J. W. Elylman,	Tyler Station, Clearfield county.
Rochester,	Bell, Lewis & Yates,	do.	Arthur McHugh,	Du Bois, Clearfield county.
Leskie,	J. E. Leskie,	do.	. . . . .	Osceola Mills, Clearfield county.
Jackson,	W. J. Jackson,	do.	W. J. Jackson,	do. do.
Moshannon, No. 1,	Moshannon Coal Company,	do.	P. B. Zentmyre,	Houtzdale, Clearfield county.
Moshannon, No. 2,	do. do.	do.	do.	do. do.
Sterling, No. 1,	Robert H. Powell,	do.	Edward McHugh,	Huntingdon, Huntingdon county.
Sterling, No. 2,	do.	do.	do.	do. do.
Franklin,	Kittanning Coal Company,	do.	James R. Cameron,	Osceola Mills, Clearfield county.
Eureka, No. 1,	Berwind, White & Co.,	do.	Peter Cameron,	Houtzdale, Clearfield county.
Eureka, No. 2,	do. do.	do.	do.	do. do.
Penn,	Reakirt, Brothers & Co.,	do.	David E. Conrad,	Moredale, Huntingdon county.
Beaver Run,	Beaver Run Coal Company,	do.	T. C. Donuelly,	Houtzdale, Clearfield county.
Atlantic,	John Whitehead & Co.,	do.	John Whitehead,	Huntingdou, Huntingdon county.
Pacific,	do. do.	do.	do.	do. do.

Goss Run,	Berwind, White & Co.,	Clearfield,	Peter Cameron,	Houtzdale, Clearfield county.
Webster,	Webster Coal Company, (Limited,)	do.	Philip Hartman,	do. do.
Excelsior,	Fisher & Miller,	do.	Thomas Richards,	do. do.
Ocean,	John Whitehead & Co.,	do.	A. G. Spears,	do. do.
Logan,	H. J. Smith & Co.,	do.	T. M. Simpson,	Osceola Mills, Clearfield county.
Reading,	Henry Liveright,	do.	Henry Liveright,	do. do.
Laurel Run,	Nuttall, Bacon & Co.,	do.	John Nuttall,	Philipsburg, Centre county.
Glenwood,	Coulter, Huff, & Co.,	do.	C. Campbell,	do. do.
Holt,	Holt, Jones & Co.,	do.	David Holt,	do. do.
Colorado,	A. & W. H. Barlow,	do.	A. Barlow,	do. do.
Shamokin,	George Robertson,	do.	George Robertson,	do. do.
Lancashire,	Campbell, Tucker & Co.,	do.	Thomas Barnes,	do. do.
Leonard,	J. T. Leonard,	do.	John Ashcroft,	do. do.
Derby,	Thomas Barnes & Brothers,	do.	Thomas Barnes,	do. do.
Morrisdale,	R. B. Wigton,	do.	W. H. Wigton,	Morrisdale, Clearfield county.
Decatur,	John Nuttall,	do.	John Nuttall,	Philipsburg, Centre county.
Mapleton,	Berwind, White & Co.,	do.	W. A. Crist,	Osceola Mills, Clearfield county.
St. Mary's,	St. Mary's Coal Company,	Elk,	Joseph Patten,	St. Mary's, Elk county.
Glen Mayo,	James H. Mayo & Co.,	do.	A. S. R. Richards,	Rolf, Elk county.
Daguscahonda,	Northwestern Mining and Exchange Company,	do.	David Robinson,	Daguscahonda, Elk county.
Eureka, No. 2,	D. Eldridge,	do.	D. Eldridge,	Centreville, Elk county.
Hazel Dell,	Kaul & Hall,	do.	Andrew Kaul,	St. Mary's, Elk county.
Cascade,	do.	do.	do.	do. do.
Powelton,	Robert H. Powell,	Huntingdon,	Edward McHugh,	Huntingdon, Huntingdon county.
Mooredale,	Reakirt, Brothers & Co.,	do.	David E. Conrad,	Moordale, Huntingdon county.
Howe,	William H. Sweet & Co.,	do.	William H. Sweet,	Dudley, Huntingdon county.
Fisher,	do.	do.	do.	do. do.
Carbon,	Mears Brothers,	do.	J. F. Mears,	Broad Top City, Huntingdon county.
Robertsdale,	Rockhill Iron and Coal Company,	do.	A. W. Sims,	Orbisonia, Huntingdon county.
McIntyre,	McIntyre Coal Company,	Lycoming,	G. H. Platt,	Langdon, Lycoming county.
Clermont,	Buffalo Coal Company,	McKean,	James Pollock,	Clermont, McKean county.
Instanter,	do. do.	do.	do.	do. do.
Buttsville,	J. E. Butts, junior,	do.	J. E. Butts,	Buttsville, McKean county.
Morris Run,	Morris Run Coal Mining Company,	Tioga,	W. S. Nearing,	Morris Run, Tioga county.
Arnot,	Blossburg Coal Company,	do.	S. B. Elliott,	Arnot, Tioga county.
Antrim,	Fall Brook Coal Company,	do.	Thomas Farrar, A. Hardt, Chief Eng., Frederick Wells,	Antrim, Tioga county.
Fall Brook,	do. do.	do.	A. Hardt, Chief Eng.,	Fall Brook, Tioga county.

TABLE II.—*A statement showing characteristics, average number of employees, production, etc., of the respective collieries in the Third Bituminous Mine District for the year ended December 31, 1880.*

NAME OF COLLIERY.	Character of coal—Bituminous or Semi-Bituminous.	Slope, shaft, or drift.	Number of pumps.	Number of engines.	Horse-power.	Number of boilers.	No. of miners—men.	No. of miners—boys.	Other employees.	Total employees.	No. of mules inside.	No. of mules outside.	No. of locomotives.	Total production of coal in tons.
Antrim, No. 1, 2, and 3,	Semi-bituminous,	Drift,	. .	1	10	1	345	32	127	504	38	. . .	1	
Argyle,	Bituminous,	do.	. .	. . .	. . .	. .	29	2	3	25	2			
Arnot, No. 1, 2, and 3,	Semi-bituminous,	do.	. .	. . .	. . .		304	108	96	508	73	1	1	
Barclay, No. 1,	do.	do.	2	2	.	2	248	59	71	378	61	7	1	
Barclay, No. 2,	do.	do.	.	.	. . .	. . .	153	26	50	229	39	4	.	15,000
Beaver Run No. 1,	Bituminous,	Slope,	2	2	75	2	60	9	15	81	4	2	. .	24,386
Ben's Creek,	Semi-bituminous,	Drift,	. .	. .	. .	.	39	5	9	53	4	3	.	20,761
Bennington,	do.	do.	3	3	. .	7	151	20	54	225	32	1	.	8,540
Bennington,	do.	Shaft,	2	3	. . .	7	141	21	50	212	29	1	.	104,966
Black Diamond,	Bituminous,	Drift,	.	.	. .	. . .	43	5	4	52	5	3	.	27,494
Buttsville,	do.	do.	2	1	. . .	2	44	5	20	69	10	2	. .	28,733
Carbon Run, No. 1, 2, and 3,	Semi-bituminous,	do.	. . .	. .	. .	. .	149	25	48	222	27	3	1	12 ,000
Caseade,	Bituminous,	do.	.	.	. .	. .	49	15	10	74	1	.	1	19,109
Clermont,	Semi-bituminous,	do.	1	1	. . .	. .	64	7	10	81	6	1	1	38,497
Colorado,	Bituminous,	do.	.	.	.	. .	17	. . .	1	18	1	1	.	2,450
Conuemaugh,	Semi-bituminous,	do.	. .	.	. . .	. . .	24	5	4	33	2	2	. .	26,626
Cuba,	Bituminous,	do.	.	.	. .	. .	18	3	2	23	1	1	. .	1,579
Cushou,	Semi-bituminous,	do.	. .	.	. .	. .	65	6	17	88	5	.	. .	23,911
Daguscahonda, No. 1, 2, and 3,	Bituminous,	do.	. .	3	130	5	193	12	19	224	10	2	. .	153,065
Decatur,	do.	do.	.	.	. .	. .	49	12	5	66	4	3	. .	45,374
Derby,	do.	do.	.	.	. .	. .	46	7	3	56	3	1	. .	13,000
Eureka, No. 1, (Clearfield,)	Semi-bituminous,	do.	.	.	. .	. .	36	5	8	49	5	4	. .	28,633
Eureka, No. 2, (Clearfield,)	do.	do.	.	.	. .	. .	111	4	11	126	6	2	. . .	14,163
Eureka, No. 2, (Elk,)	Bituminous,	do.	.	.	. .	. .	80	7	16	103	2	1	. .	38,293
Excelsior,	do.	do.	.	.	. .	. .	141	11	14	166	10	7	. . .	130,000
Fall Brook, No. 1 and 2,	Semi-bituminous,	do.	4	. .	. .	. .	117	31	33	181	27			
Franklin No. 1 and 2,	Bituminous,	do.	. .	1	10	1	120	16	45	181	20	. .	1	73,807
Gautier,	Semi-bituminous,	do.	.	.	. .	. .	24	3	4	31	2	. .	. . .	10,339
Glen White,	do.	do.	.	.	. .	. .	42	6	11	59	5	5	1	21,434
Glenwood,	Bituminous,	do.	.	.	. .	. .	47	5	7	59	3	1	. .	49,567
Goss Run,	Semi-bituminous,	do.	.	.	. .	. .	132	23	15	170	8	4	. . .	80,635
Hilldrup,	Bituminous,	do.	.	.	. .	. .	35	12	4	51	3	1		
Horseshoe,	Semi-bituminous,	do.	1	1	10	2	22	9	7	38	4	3	. . .	6,500
Instanter,	do.	do.	. . .	. . .	. . .	. . .	69	10	10	89	4	1	1	51,584

Laurel Run,	Bituminous,	do.																							57,443
Leonard,	do.	do.																							4,579
Lloyds,	Semi-bituminous,	do.																							
McIntyre, No. 1, 2, and 3,	do.	do.																							216,176
Mapleton,	do.	do.																							3,400
Martin,	Bituminous,	do.																							1,000
Moredale,	Semi-bituminous,	do.																							9,779
Morrisdale, No. 1, 2, and 3,	Bituminous,	do.																							
Morris Run, No. 1, 2, and 3,	Semi-bituminous,	do.																							265,752
Moshannon, No. 1 and 2,	Bituminous,	do.																							38,761
Mt. Hope,	do.	do.																							12,590
Ocean, No. 1 and 2,	do.	do.																							113,445
Old South Fork Coal Works,	do.	do.																							3,436
Penn, No. 1 and 2,	do.	do.																							21,351
Porter,	Semi-bituminous,	Shaft,																							42,959
Robertsdale,	do.	do.																							87,845
Rochester,	Bituminous,	Drift,																							119,810
Rolling-Mill,	Semi-bituminous,	do.																							170,791
Sandy Lick,	Bituminous,	do.																							
Snow Shoe, No. 1 and 2,	do.	do.																							24,480
Sonman,	do.	do.																							50,603
Steinman, No. 1,	do.	do.																							10,764
Steinman, No. 2,	do.	do.																							1,456
Sterling, No. 1, 2, and 3,	Semi-bituminous,	do.																							171,955
St. Mary's, No. 1 and 2,	Bituminous,	do.																							60,818
Webster, No. 1 and 2,	Semi-bituminous,	do.																							7,000
Woodvale,	do.	do.																							7,741
Total,																									2,692,320

TABLE III.—*A statement showing the method of ventilation, amount of air discharged, number of openings and headings, and size of inlets and outlets in the respective collieries of the Third bituminous mine district.*

NAME OF COLLIERY.	HOW VENTILATED.	Diameter of fan—feet.	Size of furnace—feet.	Amount of air discharged per minute—feet.	Number of openings.	Number of headings.	Inlet—size of—sq. feet	Outlet—size of—sq. feet.
Antrim, No. 1,	Furnace,		6x9	33,600	2			48
Antrim, No. 2,	do.		5x6	11,260	2			27
Antrim, No. 3,	do.		5x6					
Arnot, No. 1,	do.		5x6	25,312	2		42	72
Arnot, No. 2,	do.		6x7	32,200	2		40	40
Arnot, No. 3,	do.		6x7	27,510	2		65	70
Barclay, No. 1,	do.		5x7	65,000	2	1	72	100
Barclay, No. 2,	do.		6x8	60,760	2	1	92	98
Barclay, No. 3,	do.		5x7	31,200	2	1	68	80
Beaver Run, No. 1,	do.		5x6	17,100	2		36	25
Bennington Drift,	Fan,				2			
Bennington Shaft,	Two fans,	12		32,987	3	9	140	352
Ben's Creek,	Natural,				2			
Black Diamond,	Furnace,		5x6	2,700	2		30	30
Buttsville,	Natural,			10,440	6		36	36
Carbon Run, No. 1,	Furnaee,		6x8	10,950	2			50
Carbon Run, No. 2,	do.		5x8	30,759	2			90
Carbon Run, No. 3,	do.		5x8	20,725				
Carbon Run, No. 4,	do.		6x8					
Caseade,	do.		4x6	7,440	2	6	42	24
Clermont,	do.		4x5	10,000	2	7	33	20
Colorado,	do.		6x9	6,900	2		30	30
Connemaugh,	do.		3x6	3,596	2	2	36	31
Cushou,	do.		5x8	3,875	2	3	64	25
Daguscahonda, No. 1,	Fan,	16		15,000	2		30	50
Daguscahonda, No. 2,	Furnace,		4x9	5,600	3	1	30	28
Daguscahonda, No. 3,	do.		4x6	7,000	2	3	30	50
Decatur,	do.		6x12	7,760	2	4	36	40
Derby,	do.		4x6			2	48	30
Eureka, No. 1, (Clearfield,)	do.		6x12	18,868	2		60	36
Eureka, No. 2, (Clearfield,)	do.		6x12					
Eureka, No. 3, (Clearfield,)	do.		4x3					
Eureka, No. 2, (Elk,)	do.		4x5	2,520	2	5	42	12
Excelsior,	do.		6x12	23,040	2		64	36
Fall Brook, No. 1,	do.		5x9	7,800	2	7	30	30
Fall Brook, No. 2,	do.		6x9	18,900	3	19	35	60
Franklin, No. 1,	do.		9½x12	52,000	2	14	42	66
Franklin, No. 2,	do.		7x12					
Gautier,	do.		3x3½	3,300	2	3	35	30
Glen Mayo,	do.		6x8					
Glen White,	do.		3x5	6,000	2	2	30	30
Glenwood,	do.		6x12	20,000	2	3	35	60
Goss Run,	do.		6x12	14,884	2		56	36
Hilldrup,	do.		4x8	8,733	2	4	48	40
Horse Shoe,	do.		4x5	4,080	3		36	30
Instanter,	do.		6x5	12,000	2	8	33	30
Laurel Run,	do.		6x12	11,360	2	6	34	48
Leonard,	Natural,					2	30	
Lloydsville,	Fan,	12		16,000	2		36	36
Logan,	Furnaee,		6x8					
Long Valley,	do.		6x8		3			
McIntyre, No. 1,	do.		5x5	19,147	2	10	30	25
McIntyre, No. 2,	do.		6x7	21,252	3	9	48	42
McIntyre, No. 3,	do.		6x7	19,000	4	9	72	42
Mapleton,	do.		6x12	10,752	2	3	42	48
Moredale,	Natural,			6,600	2	3	42	30
Morrisdale, No. 1,	Furnace,		6x12	14,348	2		38	36
Morrisdale, No. 2,	do.		6x8					
Morrisdale, No. 3,	do.		6x8					
Morris Run, No. 1,	do.		8x10	59,000	3	6	90	72
Morris Run, No. 2,	do.		8x12	54,780	3	8	130	66
Morris Run, No. 3,	do.		8x10	43,160	3	12	90	52
Moshannon, No. 1,	do.		6x12	12,321	2		56	44
Moshannon, No. 2,	do.		6x12					
Mt. Hope,	do.		5x8	10,080	3		40	40
Oeean, No. 1,	do.		7x12	18,340	2		63	52
Ocean, No. 2,	do.		7x12					
Penn, No. 1,	do.		4x8	8,550	2	2	40	20

TABLE III.—METHOD OF VENTILATION, &C.—*Continued.*

NAME OF COLLIERY.	HOW VENTILATED.	Diameter of fan in feet.	Size of furnace.	Amount of air discharged per minute.	Number of openings.	Number of headings.	Inlet—size of—sq. feet.	Outlet—size of—sq. feet.
Penn, No. 2,	Furnace,		4x8					
Porter Shaft,	do.		6x5	12,000	3	3	40	24
Reading,	do.		5x8					
Robertsdale Drift,	do.		6x8		3			
Robertsdale Shaft,	do.		6x8	18,000	2	8	48	25
Rochester,	do.		9x9	26,600	2	10	63	81
Rolling Mill,	Fan,	16		43,120	5	6	64	70
Sandy Lick,	Steam jet,			13,650	2	2	42	42
Snow Shoe, No. 1,	Furnace,		6x8	17,170			48	34
Snow Shoe, No. 2,	do.		6x8	15,766	3		33	41
Sonman,	do.		4x5	13,010	2		42	30
Steinman, No. 1,	Natural,					2		
Sterling, No. 1,	Furnace,		6x12	16,100	2	1	60	70
Sterling, No. 2,	do.		6x13	14,400	2	3	56	60
St. Mary's, No. 1,	do.		4x5	12,398	2	1	54	54
Webster, No. 1,	do.		6x12					
Webster, No. 2,	do.		6x12					
Woodvale,	do.		6x5	4,080	2	2	35	30

TABLE IV.—*Showing an average monthly statement of the ventilation of the respective collieries in the Third bituminous mine district during the year 1880.*

NAME OF COLLIERY.	JANUARY.						FEBRUARY.						MARCH.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Antrim, No. 1,	. . .	. .	. . .	.	709	34,020	. . .	. . . .	.		707	34,020						
Antrim, No. 2,	. .	. .	285	7,137	481	12 980	. .	. .	283	7,087	450	12,163						
Arnot, No. 1,	418	32,274	344	9,614	827	34,919	364	25,937	298	8,178	845	35,501						
Arnot, No. 2,	1,156	46,185	360	15,145	547	48,673	1,058	42,470	314	13,513	501	43,163						
Arnot, No. 3,	449	29,055	570	13,680	426	29,872	469	30,469	572	13,775	447	31,341						
Barclay, No. 1,	455	32,785	207	10,010	472	47,230	. . .	. .	210	10,130	440	44,000	.	. . . .	180	8,640	650	65,000
Barclay, No. 2,	210	14,305	226	9,000	182	42,535	. .	. .	205	8,100	384	36,522	410	29,520	200	8,000	620	60,760
Barclay, No. 3,	. . .	. . . .	272	11,400	407	32,600	442	31,860	260	10,400	377	29,675	250	17,000	260	10,400	390	32,000
Barclay, No. 4,	. . .	.	227	7,650	412	14,740	237	16,150	190	7,600	392	14,130						
Beaver Run, No. 1,	262	11,767	201	8 452	492	17,025												
Bennington shaft,	123	17,300	160	7,733	93	33,203	93	33,242	182	8,733	190	26,664	250	35,000	200	9,600	87	36,074
Buttsville,	199	7,173	. .	. . . .	292	10,512	201	7,236	. .	. . . .	280	10,395	208	7,488	. . .	. . . .	290	10,440
Carbon Run, No. 1,	. . .	. . . .	. . .	. . . .	. . .	. . .	. . .	. . . .	. .	. . . .	599	18,768						
Carbon Run, No. 2,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. .	. . . .	186	9,325						
Carbon Run, No. 3,	. . .	. . .	. . .	. . . .	. .	. . . .	. . .	. . .	. .	. . . .	406	35,491						
Clermont,	. .	. .	. .	. .	. .	. .	. .	. .	. .		. . .	. .	285	9,405	100	3,750	470	9,400
Conemaugh,	94	3,375	47	1,410	116	3,587	94	3,402	47	1,425	115	3,580	96	3,456	48	1,440	116	3,596
Daguscahonda, No. 1,	209	6,262			479	14,362	386	11,552	290	6,070	469	14,062	450	13,500	300	6,300	265	15,300
Daguscahonda, No. 2,	216	6,055	251	5,284	417	8,350	354	10,565	254	5,225	369	7,200	500	15,000	300	6,400	270	16,000
Daguscahonda, No. 3,	244	7,762	325	6,500														
Decatur,	242	8,874	205	7,648	225	10,360	120	5,544	242	7,992	216	10,026						
Eureka, No. 1, (Clearfield,)	185	13,102	196	6,294	310	8,858												
Eureka, No. 2, (Elk,)	.	. .	.	.	.	.	232	6,975	167	4,620	260	5,614	210	6,300	180	4,860	210	7,520
Excelsior,	244	15,575	205	15,198	569	2 , 680	242	15,406	202	13,078	543	24,030						
Fall Brook, No. 1,	240	7,200	212	5,100	252	7,570	231	6,937	207	4,880	255	7,650	195	5,850	160	3,840	260	7,800
Fall Brook, No. 2,	232	8,150	242	5,265	292	17,550	225	7,987	201	5,232	279	16,725	260	9,100	384	4,160	320	19,200
Franklin, No. 1,	820	34,440	421	16,850	577	38,105	667	28,035	325	13,000	477	31,517						
Gautier,	73	2,576	35	1,790	107	3,210	73	2,533	46	1,830	108	3,247	78	2,730	48	1,920	110	3,360
Glenwood,	194	6,781	139	3,405	335	20,160	191	6,708	135	3,370	336	22,000						

Goss Run,	207	13,986	274	13,168	366	14,954																		
Horse Shoe,	91	3,285	37	1,431	114	3,639																		
Instanter,							262	10,167	147															
Laurel Run,	292	11,101	132	6,004	225	13,619	450	15,737	265	6,535	227	12,689												
Lloydsville,	452	14,440	295	8,925	422	14,787			405	9,275	405	14,525	390	13,600	310	10,850	460	16,160						
McIntyre, No. 1,	211	7,354	142	5,321			214	7,431	144	5,135			210	7,311	220	7,700	370	19,147						
McIntyre, No. 2,	197	10,246	143	6,115	352	18,309	223	11,790	149	5,485	372	19,115	220	12,163	148	5,506								
McIntyre, No. 3,	166	15,660	365	7,870	265	16,637	170	13,495	216	7,979	282	17,616	190	17,620	215	7,853	350	21,250						
Mapleton,	232	11,022	182	10,638	200	11,220	221	10,462	173	10,332	190	10,721												
Moredale,	170	7,185	166	3,570	195	5,850	152	6,405	95	3,192	165	4,875	180	7,550	130	4,368	220	6,660						
Morris Run, No. 1,	404	36,337	152	7,625	816	58,771	404	36,337	154	6,919	617	58,862												
Morris Run, No. 2,	401	52,412	141	5,650	815	54,565	402	52,325	146	6,587	817	53,955												
Morris Run, No. 3,	401	36,112	164	6,350	815	42,380	402	36,225	162	7,261	821	42,705												
Moshannon, No. 1,	294	16,450	267	10,460	296	13,635	281	15,773	281	11,796	340	13,210												
Mount Hope,	198	12,067	156	3,976	230	9,645	199	10,360	156	3,966	230	9,624	200	10,425	150	3,875	240	10,080						
Penn, No. 1,	82	3,885	51	2,059	602	10,087																		
Porter shaft,	312	14,060			555	17,200	416	13,855			387	15,500	350	12,000			500	12,000						
Robertsdale drift,													600	18,000	550	16,500	600	18,000						
Rochester,	375	23,630	252	10,122	445	31,035	375	23,612	112	5,280	422	23,660	500	20,000	240	9,600	640	26,600						
Rolling-Mill,	718	45,952	395	19,750	614	43,015	718	46,020	397	19,875	415	43,050	723	46,080	400	20,000	646	43,220						
Sandy Lick,	225	9,975	237	9,975	247	9,975	275	11,550	275	11,550	219	10,350	325	13,650	325	13,000	320	13,080						
Snow Shoe, No. 1,	384	12,683	374	11,427	503	17,168	398	13,650	393	11,821	466	13,869												
Snow Shoe, No. 2,	335	17,051	333	14,337	350	14,341	359	17,193	320	11,858	366	15,137												
Somman,	141	7,960	142	1,908	212	9,117	151	8,737			185	9,656	230	12,421			340	1,320						
Sterling, No. 1,	232	18,600	77	5,502	255	17,850																		
Sterling, No. 2,	335	16,750	87	7,000	282	16,950																		
Sterling, No. 3,	345	13,800	72	4,100	170	10,200																		
St. Mary's, No. 1,							203	12,417	204	11,401	201	12,376	202	12,690	208	11,568	273	12,444						
Woodvale,	113	4,007	64	2,550	135	4,057	115	4,042	64	2,570	135	4,065	116	4,160	65	2,600	136	4,080						

TABLE IV.—VENTILATION OF COLLIERIES—*Continued.*

NAME OF COLLIERY.	APRIL.						MAY.						JUNE.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Antrim, No. 1,					700	33,600					700	33,600					705	33,600
Antrim, No. 2,			282	7,050	480	12,960			280	7,290	430	11,610			280	7,000	416	11,610
Arnot, No. 1,							823	34,556	375	12,000	553	25,316	823	34,566	429	13,728	409	29,448
Arnot, No. 2,							778	31,120	329	13,818	805	32,200	796	31,840	259	10,878	778	31,120
Arnot, No. 3,							420	27,360	465	11,784	393	27,510	491	31,915	560	15,650	465	32,550
Barclay, No. 1,	330	30,650	180	7,200	510	51,000			150	7,680	550	53,900			190	7,600	410	48,020
Barclay, No. 2,	260	17,680	220	8,800	500	40,000	400	32,400	160	6,400	550	55,000	280	25,480	200	5,000	350	25,600
Barclay, No. 3,			260	10,400	380	30,400	250	17,000	240	9,600	400	32,000	220	14,960	160	6,400	410	14,760
Beaver Run, No. 1,	270	12,150	200	8,400	580	17,400	260	11,700	190	8,400	580	17,400	260	11,900	190	7,980	570	17,400
Bennington shaft,	251	35,000	188	8,783	76	31,897	250	36,000	214	10,494	76	36,200	251	35,000	189	8,886	88	30,436
Black Diamond,							75	2,700			120	3,600	125	3,750	60	2,700	140	3,400
Buttsville,	214	7,344			288	10,398	207	7,450			291	10,476	203	7,308			291	10,476
Carbon Run, No. 1,											659	20,758					609	19,183
Carbon Run, No. 2,											219	10,950					209	10,459
Carbon Run, No. 3,											349	31,750					459	41,769
Cascade,	210	8,820	280	6,720	310	7,440	230	9,660	320	7,680	340	8,160						
Clermont,	150	5,775	130	4,865	300	5,785	150	4,950	150	2,420	310	5,890	100	3,300	100	1,700	370	7,003
Conemaugh,	96	3,450	48	1,440	116	3,591	96	3,556	48	1,440	115	3,565	96	3,456	48	1,440	116	3,596
Daguscahonda, No. 1,	450	13,500	270	5,670	400	14,700	450	13,500	300	6,300	500	15,000						
Daguscahonda, No. 2,	420	12,600	290	6,094	230	11,500	420	12,600	360	7,200	360	7,200						
Decatur,							110	5,184	160	5,308	160	7,760	100	4,824	130	5,888	150	7,360
Eureka, No. 1, (Clearfield,)							190	13,345	200	5,848	310	8,858	300	18,536	295	13,861	380	14,709
Eureka, No. 2, (Elk,)	220	6,600	170	4,900	220	2,640	220	6,600	150	4,590	250	6,680	180	5,400	100	2,700	230	5,000
Excelsior,	259	16,000	240	15,440	650	23,400	220	14,000	205	13,120	600	22,440	245	15,680	200	16,000	640	23,040
Fall Brook, No. 1,	230	6,900	170	4,080	240	7,200	230	6,900	185	4,440	250	7,500	235	7,505	200	4,800	260	7,800
Fall Brook, No. 2,	250	8,750	159	4,030	215	12,900	190	9,450	180	4,680	335	20,100	250	8,750	200	5,200	300	18,000
Franklin, No. 1,	600	25,100	350	14,000	500	33,000	680	38,560	340	13,600	460	30,360	600	25,600	310	12,000	410	27,060
Gautier,	78	2,730	48	1,920	110	3,300	78	2,730	48	1,920	110	3,300	78	2,730	48	1,920	110	3,300
Glen White,							245	6,995	110	4,950	225	6,995	150	5,100	60	2,700	250	5,500
Glenwood,	210	7,339	135	3,510	350	21,000	210	7,350	135	3,500	350	21,000	210	7,350	120	3,510	340	24,000

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TABLE IV.—VENTILATION OF COLLIERIES—*Continued.*

NAME OF COLLIERY.	JULY.						AUGUST.						SEPTEMBER.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Antrim, No. 1,	. . .	. . .	. . .	. . . .	705	33,840	. . .	. . . .	. .	. . .	812	38,976	. . .	. . . .	. . .		800	38,976
Antrim, No. 2,	. . .	. . .	. . .	. .	430	11,610	. . .		290	7,250	430	11,610	. . .	. . . .	290	7,250	430	11,610
Arnot, No. 1,	859	36,078	376	10,928	472	39,840	680	28,560	393	11,004	387	27,844	787	33,050	375	1,200	360	25,920
Arnot, No. 2,	760	30,040	322	13,524	398	36,120	581	23,240	210	8,820	590	24,600	733	29,320	250	10,500	724	28,960
Arnot, No. 3,	447	29,055	527	12 664	411	28,770	438	28,470	491	11,784	375	29,400	411	27,300	491	11,484	402	28,140
Barclay, No. 1,	.		180	7,200	380	41,140			180	7,200	640	64,000			190	9,620	580	58,000
Barclay, No. 2,	270	28,390	210	8,400	400	36,600	420	38,220	220	9,200	540	52,920	250	17,000	270	10,800	480	46,040
Barclay, No. 3,	230	15,640	180	7,200	380	13,600	250	17,000	150	6,000	480	38,400	350	3 ,550	180	7,200	400	32,000
Beaver Run, No. 1,	.						260	12,624	224	10,752	453	16,308	260	11,700	195	8,190	470	14,100
Bennington Shaft,	231	31,368	180	9,400	88	26,988	240	33,600	190	8,887	92	31,978	239	33,600	194	9,590	93	31,788
Black Diamond,	220	6,600	90	3,600	225	7,875	220	6,600	120	3,000	230	8,400	220	6,600	75	3,000	275	9,625
Buffsville,	203	7,920	.	. . .	293	10,548	203	7,308	. . .	. . . .	287	10,872	204	7,344	. .	. . . .	286	10,296
Carbon Run, No. 1,	. .		. .	. . . .	529	16,663	. . .	. . .	. . .	. .	569	17,923						
Carbon Run, No. 2,	. .		. .	. . . .	209	10,450	. . .	. . . .	. . .	. . . .	219	10,950						
Carbon Run, No. 3,	. .	. . . .	. .	. . . .	499	45,409	. . .	. . .	. . .	. . . .	539	49,049						
Cascade,				. .			140	5,580	. . .	.	480	11,760	190	7,980	260	7,280	285	7,980
Clermont,	100	3,859	100	2 400	280	7,560	90	2,970	90	14,550	300	5,700	110	3,630	120	1,980	300	5,700
Conemaugh,	96	3,456	48	1,440	116	3,596	95	3,409	47	1,410	116	3,596	96	3,456	47	1,410	117	3,625
Cushon,	. .		.				55	3,520	57	3,078	155	3,875	55	3,520	58	3,132	155	3,875
Daguscahonda, No. 1,	300	9,150	181	3,800	300	11,040	260	7,830	134	4,455	367	11,110	550	16,500	552	15,600	650	19,500
Daguscahonda, No. 2,	289	8,670	210	4,410	506	10,600	198	5,940	220	6,160	471	9,666	185	5,500	205	5,945	400	12,000
Daguscahonda, No. 3,	198	6,570	145	4,350	425	8,920	254	7,620	364	7,581	390	8,190	220	6,600	359	7,700	250	9,250
Decatur,	150	6,625	160	6,208	160	7,760	90	4,460	100	4,288	100	5,360	120	5,544	80	3,648	120	6,160
Eureka, No. 1, (Clearfield,)	180	12,768	210	5,848	320	9,110	190	13,314	210	5,848	320	9,100	180	12,768	200	5,516	320	9,110
Eureka, No. 2, (Elk,)	200	6,000	170	4,590	250	6,580	200	6,000	793	2,790	195	2,980	275	8,400	180	4,860	400	4,800
Excelsior,	245	15,600	225	12,600	624	22,464	235	14,440	200	12,800	625	22,500	300	18,536	300	14,060	385	14,884
Fall Brook, No. 1,	240	7,200	200	5,040	265	7,950	250	7,500	260	9,000	265	7,950	260	7,800	215	5,140	300	9,000
Fall Brook, No. 2,	270	9,450	195	5,460	340	21,600	260	9,275	220	5,720	510	18,600	230	8,050	210	5,460	300	18,000
Franklin, No. 1,	1,112	47,040	590	23,600	780	5 ,480	1,100	46,200	620	24,800	715	47,190	1,020	42,840	700	28,000	700	46,200
Gantier,	78	2,730	47	1,880	110	3,300												

Glen White,	150	5,400	70	3,150	250	5,500	130	4,930	80	3,600	210	4,620	150	5,400	80	3,660	240	5,280
Glenwood,	199	7,350	135	3,570	350	21,000	200	7,250	135	3,510	350	21,040	210	7,350	135	3,510	350	21,000
Goss Run,	300	18,336	310	14,665	385	14,884	310	18,336	300	14,065	385	14,884						
Instanter,	90	3,300	240	2,600	300	5,700	100	3,850	100	2,400	260	7,022	90	3,465	110	2,640	300	8,100
Laurel Run,	275	10,546	170	7,344	250	11,360	300	11,358	100	4,824	230	10,560	350	13,050	233	9,594	300	13,360
Lloydsville,	290	10,150	300	10,500	600	21,700	550	19,359	300	10,500	530	21,650	450	16,110	229	7,700	509	18,900
McIntyre, No. 1,	215	7,456	170	6,147			225	7,747	148	5,535			200	7,020	210	7,420		
McIntyre, No. 2,	227	12,628	220	8,114	390	29,078	220	12,163	212	7,551	340	17,750	160	9,369	90	4,073	250	13,520
McIntyre, No. 3,	160	15,225	175	6,712	260	16,363	186	17,192	187	7,084	284	17,666	250	21,897	140	4,347	400	23,960
Mapleton,	120	4,680	200	9,842	220	12,144	110	6,132	170	10,224	210	11,684	110	6,132	160	9,864	200	11,232
Moredale,	200	8,400	130	4,368	230	6,900	170	7,140	115	3,864	160	4,800	160	6,720	133	4,388	170	5,170
Morris Run, No. 1,	420	37,800	170	7,650	840	58,760	420	37,800	160	7,200	840	60,480	420	37,800	155	6,975	845	66,000
Morris Run, No. 2,	415	53,960	155	6,975	835	55,440	415	53,950	155	6,975	810	55,440	415	53,950	155	6,975	840	55,440
Morris Run, No. 3,	420	37,800	160	7,200	830	41,960	420	37,800	160	7,200	850	44,200	420	37,800	160	7,200	845	43,940
Moshannon, No. 1,	260	14,560	220	9,900	280	12,380	255	14,280	225	10,125	260	11,440	265	14,840	240	10,350	275	12,100
Ocean, No. 1,	480	30,240	160	4,000	325	17,940	475	29,998	156	3,880	320	16,640	484	30,492	170	4,250	325	16,900
Penn, No. 1,	160	6,400	63	2,520	575	8,625	160	6,400	65	2,600	570	8,550	160	6,400	65	2,600	575	8,625
Porter Shaft,													340	13,800				
Robertsdale Shaft,	600	18,000	575	17,250	600	18,000							600	18,000	550	16,500	690	18,000
Rochester,	365	20,449	135	5,440	525	37,800	450	21,600	220	8,800	550	30,800						
Rolling-Mill,	740	45,080	400	24,000	616	43,120	720	46,080	400	20,000	617	43,190	720	46,080	400	20,000	618	43,260
Sandy Lick,	350	14,700	340	14,700	350	15,650	325	13,650	300	12,600	325	13,650	525	13,650	390	14,400	325	13,690
Snow Shoe, No. 1,	379	12,523	349	10,512	389	13,232							398	13,163	418	12,549	408	13,892
Snow Shoe, No. 2,	321	15,422	311	13,815	321	13,571							331	15,884	311	13,398	310	13,965
Sonman,	229	12,000			320	12,810	190	10,800			305	12,160						
Sterling, No. 1,	259	13,890	260	8,000	290	14,250							240	25,200	123	7,200	230	13,890
Sterling, No. 2,	210	10,500	110	7,150	320	16,000							300	16,500	110	6,690	220	16,060
Sterling, No. 3,													200	12,000	120	6,720	180	13,500
St. Mary's, No. 1,	295	12,852	206	11,472	204	12,798	206	12,906	208	11,568	210	13,122	205	12,852	206	11,472	204	12,798
Woodvale,	116	4,060	66	2,640	188	4,140												

TABLE IV.—VENTILATION OF COLLIERIES—*Continued.*

NAME OF COLLIERY.	OCTOBER.						NOVEMBER.						DECEMBER.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Antrim, No. 1,	. . .	. . . .	.	. .	870	41,760	. .	. . . .			860	42,800	. .	. . . .	.	.	430	11,610
Antrim, No. 2,	.	. . . .	300	7,500	474	12,098	. .	. .	299	7,500	400	11,610		. .	300	7,500	860	41,280
Antrim, No. 3,	. .	. .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	408	17,220
Arnot, No. 1,	721	32,820	330	10,560	350	25,200	340	24,696	250	8,000	465	19,630	370	23,664	501	16,032	716	29,272
Arnot, No. 2,	727	28,960	250	10,500	688	27,520	840	32,560	290	12,180	830	32,920	760	32,920	300	12,600	572	28,600
Arnot, No. 3,	455	29,575	447	10,728	499	29,400	433	31,395	509	12,216	429	30,030	428	28,470	483	11,592	411	28,770
Barclay, No. 1,		.	170	8,160	570	57,000	.		240	11,520	540	54,000			270	10,800	650	62,000
Barclay, No. 2,	350	31,850	230	9,200	450	44,100	400	36,400	230	9,200	320	37,240	360	32,760	260	10,400	420	41,160
Barclay, No. 3,	250	17,000	170	8,160	370	29,600	240	16,321	180	7,200	450	46,000	220	14,960	250	10,000	400	32,000
Bennington shaft,	229	30,981	185	8,879	92	26,968	250	35,000	210	9,800	93	32,986	240	33,600	185	8,778	80	28,452
Black Diamond,	260	7,800	230	8,800	270	9,450	215	6,450	180	7,600	250	8,750	240	7,200	180	6,720	250	8,785
Buttsville,	209	7,524	. .	. . .	292	10,512	203	7,308	.	.	292	10,502	267	7,596	.	. . .	298	10,728
Carbon Run, No. 1,	. .	. . .	. .	. . .	569	17,923	.		. .	. .	679	21,388						
Carbon Run, No. 2,	. . .	. .	.	. . . .	229	11,450	.	. .	.	. .	219	10,950						
Carbon Run, No. 3,	. . .	. . .	. . .	. . .	349	31,759	.	. .	.	. . . .	419	28,129						
Cascade,	. . .		. .										250	10,500	400	9,600	370	10,360
Clermont,	120	3,960	140	2,520	290	5,510	120	3,960	100	1,800	350	6,650	120	3,960	100	1,800	300	6,660
Colorado,	190	5,700	120	2,880	230	6 000							190	5,700	120	2,880	230	6,900
Conemaugh,	96	3,456	47	1,410	117	3,627	97	3,492	48	1,440	117	3,627	98	3,528	48	1,440	117	3,627
Cushon,	50	3,520	58	3,132	150	3,750	64	3,520	58	3,132	155	3,875	64	3,520	58	3,132	155	3,875
Daguscahonda, No. 1,	250	7,500	115	4,025	360	11,800	325	10,050	325	9,750	500	18,360	350	10,680	250	7,500	350	1,850
Daguscahonda, No. 2,	108	3,240	90	1,999	445	8,100	250	7,500	310	6,510	355	6,390	356	10,960	325	9,750	500	18,300
Daguscahonda, No. 3,	200	6,000	220	4,400	475	9,500	340	10,200	360	7,560	505	10,600	340	10,200	330	7,900	500	10,500
Decatur,	120	5,544	270	9,728	270	12,160	130	5,904	200	7,488	200	9,260	125	5,124	120	4,928	120	6,160
Eureka, No. 1, (Clearfield,)	180	12,768	195	5,499	380	8 858	195	13,634	210	5,448	320	9,410						
Eureka, No. 2, (Clearfield,)	380	17,161	300	13,340	440	19,260	380	17,390	200	12,862	390	18,823						
Eureka, No. 2, (Elk,)	220	6 600	170	4,490	250	3,000	.	.	.	.	.	.	210	6,300	180	4,860	200	7,000
Excelsior,	246	15.747	245	13,720	635	22,760	245	15,680	200	14,400	645	23.220	230	14,796	195	14,040	630	22,680
Fall Brook, No. 1,	270	8,100	220	5,280	300	9,000	275	8,250	230	5,280	280	9,000	280	8,400	230	5,520	320	9,600
Fall Brook, No. 2,	235	8,225	220	5,720	300	18,000	240	8,400	220	5,720	300	18,000	280	9,800	230	5,980	326	19,200

Franklin, No. 1,	930	39,660	675	58,000	650	42,900	1,130	47,463	551	22,060	800	52,070											
Glen White,	150	5,400	80	3,640	259	5,590	159	5,400	70	3,150	20	5,500	157	5,400	60	2,700	250	5,500					
Glenwood,	210	7,351	135	3,510	341	20,400	20	7,350	134	3,480	350	24,000	210	7,350	135	3,500	340	21,660					
Goss Run,	340	18,536	390	14,065	389	14,679	310	19,479	300	14,065	390	14,900											
Hilldrup,							157	7,536	155	6,501	185	7,580	178	8,544	135	6,490	213	8,733					
Instanter,	100	3,859	110	2,643	250	6,750	110	4,235	100	2,440	30	8,100	110	4,235	10	2,100	270	7,290					
Laurel Run,	350	13,056	225	9,324	300	13,360	351	13,650	163	6,981	300	13,361	300	13,056	130	5,904	259	11,700					
Lloydsville,	540	18,900	230	8,050	60	21,000	360	19,600	231	8,650	580	21,000	350	12,250	231	8,750	68	2,210					
McIntyre, No. 1,	140	5,274	150	5,856			200	7,020	251	8,475			180	9,340	261	8,766							
McIntyre, No. 2,	180	10,300	161	4,684	230	12,628	161	9,639	150	4,332	560	14,491	190	10,746	153	5,004	380	14,956					
McIntyre, No. 3,	140	13,772	140	4,684	331	20,665	150	14,469	101	4,684	380	21,795	170	15,982	150	5,936	340	20,708					
Mapleton,	110	4,440	160	9,864	210	11,664	123	4,683	151	9,440	210	11,664	120	14,681	170	10,200	210	15,641					
Martin,													58	3,240	45	2,003							
Moredale,	180	7,560	120	4,032	170	50,100	200	8,460	131	4,383	240	7,200	200	8,000	130	4,468	210	6,300					
Morris Run, No. 1,	420	37,800	161	7,200	855	61,550	425	38,250	160	7,200	855	61,550	425	38,250	150	6,750	890	61,920					
Morris Run, No. 2,	420	51,600	155	6,975	845	56,430	421	54,600	171	7,651	861	56,760	430	55,900	160	7,200	865	59,200					
Morris Run, No. 3,	420	37,800	150	6,700	850	44,200	425	37,800	165	7,425	855	44,469	428	38,700	170	7,650	875	45,480					
Moshannon, No. 2,	280	15,680	261	11,700	300	13,290	280	15,680	250	11,250	281	12,320	275	15,400	255	10,800	275	12,440					
Ocean, No. 1,	400	3,870	173	4,325	333	17,360	50	32,131	189	4,590	310	17,689	540	31,500	200	5,001	375	1,950					
Penn, No. 1,	160	6,100	63	2,521	570	8,550	172	6,889	70	2,800	585	8,575	170	6,800	70	2,800	582	8,730					
Porter shaft,							340	13,600			450	18,000	340	13,600			410	15,840					
Robertsdale shaft,	650	19,560	670	18,000	600	18,000	600	18,000	500	15,000	600	18,000	600	18,000	500	15,000	600	18,000					
Rochester,	350	19,600	125	6,100	400	24,800	40	21,600	151	6,601	550	34,650											
Rolling-Mill,	720	46,080	400	19,590	648	43,260	720	46,080	490	20,000	618	43,600	720	46,080	400	20,000	618	43,265					
Sandy Lick,							275	11,550	189	668	300	12,640	330	12,600	300	10,500	300	12,600					
Snow Shoe, No. 1,	379	12,523	379	11,853	418	14,222																	
Snow Shoe, No. 2,	311	14,956	385	12,901	321	13,373																	
Sonman,													210	11,340			330	9,240					
Sterling, No. 1,	210	23,100	200	12,000	270	19,710	280	2,528	110	6,600	250	24,070											
Sterling, No. 2,	320	15,041	130	7,920	350	14,000	320	17,660	141	7,561	330	18,150											
Sterling, No. 3,	260	11,700	110	6,161	230	18,400	40	18,459	180	10,890	20	11,270											
St. Mary's, No. 1,	205	12,852	205	11,420	204	11,940	205	12,906	203	11,328	206	12,906											
Webster, No. 1,													250	11,250	220	9,240	580	17,400					

LIST OF ACCIDENTS *occurring in the mines of the Third Bituminous Coal District of Pennsylvania, for the year ended December 31, 1880.*

DATE.	Name of Person Injured.	Age.	Married or Single.	Number of orphans.	Name of Colliery.	Location—county.	Date of investigation.	Nature and Cause of Accident.
Jan. 9	Samuel McIntosh,		Married,		Ben's Creek,	Cambria,		Leg broken; cause not given.
9	Charles Swinger,				Excelsior,	Clearfield,	Jan. 9	Killed by fall of coal.
14	Charles Stanton,	16	Single,		Johnstown,	Cambria,	14	Killed; kicked by a mule.
20	John P. Davis,	48	Married,		Arnot,	Tioga,		Foot bruised by fall of coal.
Feb. 13	William Blumbaugh,	22	Single,		Moshannon,	Clearfield,		Head bruised; cause not given.
13	John O'Donald,	35	Married,		Rochester,	do.		Leg broken by fall of coal.
16	Edward Lute,	35	do.		Moshannon,	do.		Spine injured by falling from trestle.
18	Henry Waggett,	30	do.		Rochester,	do.		Collar bone broken; caught by mine car.
25	William Dennison,	32	Single,		McIntyre,	Lycoming,		Leg broken by fall of coal.
Mar. 1	John Rupert,		Married,	5	Rochester,	Clearfield,	Mar. 7	Killed by fall of coal.
21	Robert Bush,	14	Single,		McIntyre,	Lycoming,		Leg injured; caught between mine cars.
31	J. F. Griffith,	37	Married,		Robertsdale,	Huntingdon,		Body bruised by fall of slate.
Apr. 10	Charles Gibson,	10	Single.		Stineman,	Cambria,	Apr. 10	Killed; caught by mine cars.
17	John Clich,	30	Married,		Lloydsville,	do.		Collar bone broken; cause not given.
23	John Moyer,	33	do.		Morrisdale,	Clearfield,	23	Killed by fall of roof rock.
23	Thomas Heath,	30	do.		Robertsdale,	Huntingdon,		Leg bruised by fall of coal.
23	Henry King,	45	do.		do.	do.		Shoulder bruised by fall of coal.
28	D. McMaingle,	59	do.		Sterling, No. 1,	Clearfield,		Ribs broken; caught between mine car and coal.
May 1	Peter Wylie,	18	Single,		McIntyre,	Lycoming,		Arm broken between mine car and coal.
6	Nathen Powers,	14	do.		Barclay,	Bradford,	May 6	Killed by fall of roof rock.
11	William Henderson,	19	do.		McIntyre,	Lycoming,		Arm broken between mine car and coal.
11	Harry Isenberg,	16	do.		Ocean,	Clearfield,	12	Killed by fall of top coal.
17	James Baird,	17	do.		McIntyre,	Lycoming,		Thumb bruised by bar of iron.
17	Stephen Bowers,	19	do.		do.	do.		Foot crushed by loaded mine car.
25	James Lynagh,	50	Married,	3	Sterling, No. 1,	Clearfield,	25	Killed by fall of coal.
26	John Johnson,	28	do.		Arnot,	Tioga,		Hand bruised by fall of slate.
29	John P. Jones,	36	do.		do.	do.		Foot bruised by fall of roof.
June 14	Archibald Snedden,	14	Single,		do.	do.		Leg broken by fall of coal.
17	Alexander McCalpine,	55	Married,	4	Eureka,	Clearfield,	June 17	Killed by fall of coal.
24	Archibald Harrie,	16	Single,		Arnot,	Tioga,		Hand crushed by mine cars.
29	George Campbell,	12	do.		Franklin,	Clearfield,		Foot taken off above ankle by mine car.
July 8	John Lewis,	40	Married,		Daguscahonda,	Elk,		Body slightly bruised by fall of coal.
9	Archibald Marshall,	22	Single,		Morris Run,	Tioga,		Leg broken by fall of coal.
10	Philip Krollman,	47	Married,	1	Snow Shoe,	Centre,	July 10	Killed by fall of coal.
12	George Ott,				Goss Run,	Clearfield,		Leg fractured by fall of coal.
16	Henry Abaleo,				Eureka,	do.		Leg fractured by fall of coal.
16	William Lane,				Goss Run,	do.		Ribs broken by fall of coal.
19	Peter Hughes,		Married,		Rolling-Mill Mine,	Cambria,		Burnt by powder while charging a hole.

	21	John Eager,	22	Single,		Bennington Shaft,	Blair,		Foot bruised by fall of rock.
	27	O. Hanson,	40			Sterling, No. 1,	Clearfield,		Leg broken by fall of coal.
	30	Alfred Howell,	15	Single,		Bennington Shaft,	Blair,		Back injured by falling off ladder in shaft.
	31	William Devine,	53	Married,		Arnot,	Tioga,		Collar bone broken by fall of coal.
Aug.	6	James Marshall,	27	Single,		Morris Run,	do.		Leg broken by fall of coal.
	28	John Beatty,	60	do.		Clermont,	McKean,		Foot bruised by fall of slate.
	31	John Carey,	38	do.		Franklin,	Clearfield,	Aug. 31	Killed by fall of coal.
Sept.	2	William Fawcett,	40	Married,		Arnot,	Tioga,		Head and chest bruised by fall of coal.
	3	A. E. Couples,	41	do.		Penn,	Clearfield,		Body and leg bruised by fall of rock.
	7	Robert Brown,	48	do.		Arnot,	Tioga,		Four ribs broken by fall of roof.
	16	Frederick Wheeler,	14	Single,		Antrim,	do.		Both collar bones broken between mine engine & coal.
	22	Gilliam Williams,	39	Married,		Arnot,	do.		Leg broken by mine car.
	23	David Irwin,	16	Single,		Franklin,	Clearfield,		Leg broken; cause not given.
	29	William Larkins,	50	Married,	5	Lloydsville,	Cambria,	Sep. 29	Killed by fall of roof slate.
		Patrick Ryan,	50	Single,		Sterling, No. 1,	Clearfield,		Collar bone broken by fall of coal.
Oct.	1	Patrick Ryan,	46	do.		Sterling, No. 2,	do.		Leg broken by fall of coal.
	6	Thomas Dugan,	23	Married,		Mapleton,	do.		Arm broken by mine cars.
	6	John Robertson,	24	Single,		Glenwood,	do.		Ribs broken while breaking coal.
	9	Michael Dobbins,	32	Married,		Arnot,	Tioga,		Foot and ankle injured by fall of coal.
	16	John D. Carlson,		Single,		Clermont,	McKean,		Spinal cord injured; caught between mine car & coal.
	19	Olof Johnston,	40	Married,		McIntyre,	Lycoming,		Legs bruised by fall of coal.
	22	James H. Logan,	35	do.		Robertsdale,	Huntingdon,		Back bruised by fall of slate.
		John Lindetron,	35			Sterling, No. 1,	Clearfield,		Body bruised; cause not given.
		Bernard Erieson,	26			Sterling, No. 1,	do.		Foot bruised; cause not given.
Nov.	6	Michael Caniran,	32	Married,		McIntyre,	Lycoming,		Body bruised by fall of coal.
	16	John D. Carlson,	27	Single,		Clermont,	McKean,		Killed; reported in October, and died at this date.
	17	William Crooks,	30	Married,		Arnot,	Tioga,		Arm dislocated by fall of roof tone.
	19	Michael Glancy,	18	Single,		Bennington Shaft,	Blair,		Leg broken by mine car going off track.
	20	George Tovey,	24	do.		McIntyre,	Lycoming,		Foot crushed by mine car running over it.
	23	Leoan Turley,	17	do.		Ocean,	Clearfield,	Nov. 23	Killed by fall of top coal.
	25	William Murray,	25	do.		Hildrup,	do.	25	Killed by fall of coal.
Dec.	20	George Huggan,				Carbon Run,	Bradford,	Dec. 20	Killed by fall of roof stone.
	21	David Harris,	57	Married,	1	Arnot,	Tioga,	21	Killed by fall of coal.
	23	Henry Horton,	13	Single,		Conemaugh,	Cambria,	23	Killed by fall of roof slate.
	29	James McKernan,	40	Married,		Glenwood,	Clearfield,		Shoulder bruised by fall of coal.

LABOR LAWS OF PENNSYLVANIA.

EXEMPTION FROM EXECUTION.

AN ACT

To exempt property to the value of three hundred dollars from levy and sale on execution and distress for rent.

Section 1. Be it enacted, etc., That in lieu of the property now exempt by law from levy and sale on execution, issued upon any judgment obtained upon contract and distress for rent, property to the value of three hundred dollars, exclusive of all wearing apparel of the defendant and his family, and all Bibles and school-books in use in the family, (which shall remain exempted as heretofore,) and no more, owned by or in possession of any debtor, shall be exempt from levy or sale on execution or by distress for rent.

Property to the value of $300, exclusive of wearing apparel, etc., exempt from levy and sale.

Section 2. That the sheriff, constable, or other officer charged with the execution of any warrant issued by competent authority, for the levying upon and selling the property, either real or personal, of any debtor, shall, if requested by the debtor, summon three disinterested and competent persons, who shall be sworn or affirmed, to appraise the property which the debtor may elect to retain under the provisions of this act, for which service the said appraisers shall be entitled to receive fifty cents each, to be charged as part of the costs of the proceedings; and property thus chosen and appraised, to the value of three hundred dollars, shall be exempt from levy and sale on the said execution or warrant, excepting warrants for the collection of taxes.

Property to be appraised

Pay of appraisers

Section 3. That in any case where the property levied upon as aforesaid shall consist of real estate of greater value than three hundred dollars, and the defendant in such shall elect to retain real estate amounting in value to the whole sum of three hundred dollars, or any less sum, the appraisers aforesaid shall determine whether, in their opinion, the said real estate can be divided without injury to or spoiling the whole; and if the said appraisers shall determine that the said real estate can be divided as aforesaid, then they shall proceed to set apart so much thereof as in their opinion

Proceedings in case the defendant elects to retain real estate.

shall be sufficient to answer the requirement of the defend ant in such case, designating the same by proper metes and bounds, all of which proceedings shall be certified in writing by the said appraisers, or a majority of them, under their proper hands and seals, to the sheriff, under sheriff, or coroner, charged with the execution of the writ in such case, who shall make return of the same to the proper court from which the writ issued, in connection with the said writ:

Proviso.

Provided. That this section shall not be construed to affect or impair the liens or bonds, mortgages, or other contracts for the purchase money of the real estate of insolvent debtors.

Plaintiff entitled to his writ of venditioni exponas to sell real estate.

Section 4. That upon return made of the writ aforesaid, with the proceedings thereon, the plaintiff in the case shall be entitled to have his writ of *venditioni exponas*, as in other cases, to sell the residue of the real estate included in the levy aforesaid, if the appraisers aforesaid shall have determined upon a division of the said real estate; but if the said appraisers shall determine against a division of said real estate, the plaintiff may have a writ of *venditioni exponas* to sell the whole of the real estate included in such levy; and it shall and may be lawful in the latter case for the defendant in the execution to receive from the sheriff or other officer of the proceeds of said sale so much as he would have received at the appraised value had the said real estate been divided.

Repeal.

Section 5. That the twenty-sixth section of the act entitled "An act relating to executions," passed sixteenth of June, 1836, and the seventh and eighth sections of an act entitled "An act in regard to certain entries in ledgers in the city of Pittsburg, and relating to the publishing of sheriff's sales and for other purposes," passed twenty second April, 1846, and all other acts inconsistent with this act, be and the same are hereby repealed.

When this act to take effect.

Section 6. That the provisions of this act shall not take effect until the fourth day of July next, and shall apply only to debts contracted on and after that date.

APPROVED, April 9th, 1849.

AN ACT

Relating to boarding-house keepers in the county of Allegheny.

May attach wages of persons indebted for board.

Section 1. Be it enacted. &c., That on and after the passage of this act all proprietors of hotels, inns, boarding houses, lodging houses, et cetera. within the county of Allegheny, in addition to the remedies now provided by law,

shall have the right to attach wages due or owing to such persons as may be indebted to them for boarding, not exceeding the amount of four weeks, and any sum so due may be attached, but shall not be paid until the judgment is first had for such amount as may be due upon such attachment, and justices of the peace shall have jurisdiction of attachment in case for such purpose.

Section 2. All acts or parts of acts inconsistent herewith, be and the same are hereby repealed.

Approved, March 16th, 1872.

AN ACT

Extending the provisions of an act, entitled "An act relating to boarding-house keepers in the county of Allegheny," approved March 16th, 1872, to Westmoreland county.

Section 1. Be it enacted, &c., That the provisions of an act, entitled "An act relating to boarding-house keepers in the county of Allegheny," approved March 16th, 1872, be and the same is hereby extended to the county of Westmoreland.

Approved, April 10th, 1873.

FACTORIES.

AN ACT

Relative to the hours of labor in manufacturing establishments.

Ten hours to be considered a legal day's labor in factories.

Section 2. Be it enacted, etc., That from and after the passage of this act, labor performed during a period of ten hours on any secular day in all cotton, woolen, silk, paper, bagging and flax factories, shall be considered a legal day's labor, and that hereafter no minor shall be employed in or about any of said factories, until he or she shall have attained the age of thirteen years.

Penalty for employing minors under thirteen years of age.

Section 3. That if any owner or employer of or in any of the said factories, or his, her or their agent, shall wilfully or knowingly employ any minor below the age of thirteen years as aforesaid, the person or persons so offending shall pay a penalty of fifty dollars for every such offence, to be sued for and recovered by any person suing for the same, as other debts of like amount are now by law recoverable; one half of the same to belong to the person suing for the same, and the other half to the county in which the offence was committed.

Minors between the age of thirteen and sixteen years not to be employed in said factories for more than nine months.

Section 4 That hereafter no minor who has attained the age of thirteen, and is under the age of sixteen years, shall be employed in any of the factories aforesaid, for a longer period than nine calender months in any one year, and who shall not have attended school for at least three consecutive months within the same year; and any owner or employer of or in any of the factories aforesaid, offending against the provisions of this section shall be liable to the penalty provided in the third section of this act, to be sued for, recovered, and applied as therein provided.

Penalty for parents or guardians permitting their children or wards under the age of thirteen years to be employed in such factories.

Section 5. That from and after the fourth of July next, if any parent or guardian shall consent to, permit, or connive at the employment of his or her child or ward under the age of thirteen years in any of the said factories, or if such parent or guardian shall consent to, permit, or connive at the employment of his or her child or ward over the age of thirteen years, and under the age of sixteen years, for a longer period than ten hours in any secular day, the person so offending shall forfeit and pay the sum of fifty dollars for every such offence to be sued for and recovered as provided in the third section of this act, and for the uses therein specified.

Repeal.

Section 6. That the act, entitled "An act to limit the hours of labor and to prevent the employment in factories of children under the age of twelve years," approved the 28th day of March, 1848, be, and the same is hereby repealed.

APPROVED, April 21st, 1849.

A SUPPLEMENT

To an act passed the 21st of April, 1849, relative to the hours of labor in manufacturing establishments.

Operatives under 21 years not to be employed more than 60 hours per week, nor 10 hours per day.

Section 1. Be it enacted, &c., That from and after the passage of this act, no male or female operative under the age of twenty-one years shall, under any contract, be employed in cotton, woolen, silk, flax, bagging or paper manufactories in this Commonwealth, for a longer period than sixty hours in any one week, or more than an average of ten hours a day during the same period.

Penalty for violating preceding section.

Section 2. That if any person shall knowingly employ, or any parent or guardian consent to the employment of any male or female operative under the age of twenty-one years as aforesaid, contrary to the preceding sections, and proof be made thereof before any alderman or justice of the peace

of the ward, borough, or district where such offence is committed, he, she, or they so employing such operatives or consenting thereto as aforesaid, shall, for every such offence, forfeit and pay the penalty of not less than ten, nor more than fifty dollars, to be recovered before any alderman or justice of the peace of the proper ward, borough, or district in the same manner as the like penalties are now recovered, to be applied to the use of the public schools of the proper districts: *Provided*, That no penalty shall be recovered under this act, unless sued for within one month after the same shall have occurred; nor shall any person recover more than one penalty for the working of any factory for the same period of time. Proviso.

Section 3. That all the ward, borough, and township constables are hereby authorized and required, and it is hereby made their duty to attend to the strict observance of the two preceding sections of this act, when complaint shall have been properly made to them of a violation of the same. Duty of constables.

Approved, May 27th, 1855.

HOURS OF LABOR.

AN ACT

To limit the hours of labor constituting a day's work in this State to eight hours.

Section 1. Be it enacted, &c., That on and after the first day of July, 1868, eight hours of labor, between the rising and setting of the sun, shall be deemed and held to be a legal day's work in all cases of labor and service by the day, where there is no contract or agreement to the contrary. Eight hours deemed a day's work in certain cases.

Section 2. This act shall not apply to or in any way affect farm or agricultural labor or service by the year, month or week; nor shall any person be prevented by anything herein contained, from working as many hours overtime or extra work as he or she may see fit, the compensation to be agreed upon between the employer and the employee.

Section 3. All other acts or parts of acts relating to the hours of labor which shall constitute a day's work in this State, are hereby repealed.

Approved, April 14th, 1868.

FIRE-ESCAPES.

AN ACT

To provide for the better security of life and limb, in cases of fire in hotels and other buildings.

Preamble.

WHEREAS, In consequence of fires breaking out in hotels, factories and other high buildings, many lives have been lost and great personal injuries suffered, through the want of efficient means of escape therefrom, independently of the ordinary internal stairways; therefore,

Certain buildings to be provided with fire-escapes.

Section 1. Be it enacted, etc., That all the following described buildings, within this commonwealth, to wit: Every building used as a seminary, college, academy, hospital, asylum or a hotel for the accommodation of the public, every store-house, factory, manufactory, or workshop of any kind, in which employees or operatives are usually employed at work in the third or any higher story, every tenement house or building in which rooms or floors are usually let to lodges or families, and every public school building, when any of such buildings are three or more stories in height, shall be provided with a permanent safe external means of escape therefrom in case of fire; and it shall be the duty of the owners, superintendents or managers of such seminaries, colleges, academies, hospitals, asylums, store-houses, factories, manufactories or workshops, of the owners or landlords of such tenement houses, or their agents, and of the board of school directors of the proper school district, to provide and cause to be affixed to every such building such permanent fire escapes.

Examination and approval of fire-escapes.

Section 2. It shall be the duty of the board of fire commissioners, in conjunction with the fire marshal of the district where such commissioners and fire marshals are elected or appointed, to first examine and test such fire-escapes, and after, upon trial, said fire-escape should prove satisfactory, then the said fire marshal, in connection with the fire commissioners, or a majority of them, shall grant a certificate approving said fire-escape: *Provided further*, That in districts where no such fire marshal and fire commissioners exist, then the school directors in each said district shall be the board of examiners, and upon their certificate, or a majority of them, of approval of said fire-escape shall be sufficient authority for the erection of said fire-escape in said district.

Liability for damages sustained by want of fire-escapes.

Section 3. Every person whose duty it is by the first section of this act to provide, and cause to be affixed to any of said buildings such external fire-escape, and every such

school district, shall also be liable in an action for damages in case of death or personal injury sustained in consequence of fire breaking out in any such building, and of the absence of such efficient fire-escape. And such action may be maintained by any person now authorized by law to sue in other cases of similar injuries. All persons failing to comply with the provisions of this act, shall be liable to a penalty not exceeding ($300) three hundred dollars, to be collected as fines and forfeitures are now by law collectible.

Penalty for non-compliance with act.

APPROVED, June 11, 1879.

MECHANICS' UNIONS.

AN ACT

To authorize mechanics, journeymen tradesmen, and laborers, to form societies and associations for their mutual aid, benefit, and protection.

Section 1. Be it enacted, &c., It shall be lawful for any and all classes of mechanics, journeymen, tradesmen, and laborers, to form societies and associations for their mutual aid, benefit, and protection, and peaceably to meet, discuss, and establish all necessary by-laws, rules, and regulations to carry out the same: all acts or parts of acts inconsistent herewith are hereby repealed: *Provided*, The provissions of this act shall not apply to the counties of Clearfield and Centre.

APPROVED, May 8, 1869.

AN ACT

To relieve laborers, workingmen, and journeymen, from certain prosecutions and indictments for conspiracy, under the criminal laws of this commonwealth.

Section 1. Be it enacted, &c., That from and after the passage of this act it shall be lawful for any laborer or laborers, workingman or workingmen, journeyman or journeymen, acting either as individuals or as members of any club, society, or association, to refuse to work or labor for any person or persons whenever, in his, her, or their opinion the wages paid are insufficient, or the treatment of such laborer or laborers, workingman or workingmen, journeyman or journeymen, by his, her, or their employer is brutal or offensive, or the continued labor by such laborer or laborers, workingman or workingmen, journeyman or journey-

Laborers and others not to be subject to prosecutions for refusing to work.

men, would be contrary to the rules, regulations, or by-laws of any club, society, or organization to which he, she, or they might belong, without subjecting any person or persons, so refusing to work or labor, to prosecution or indictment for conspiracy under the criminal laws of this commonwealth: *Provided*, That this act shall not be held to apply to the member or members of any club, society, or organization, the constitution, by-laws, rules and regulations of which, are not in strict conformity to the constitution of the State of Pennsylvania, and to the constitution of the United States: *Provided*, That nothing herein contained shall prevent the prosecution and punishment, under existing laws, of any person or persons who shall, in any way, hinder persons who desire to labor for their employers from so doing, or other persons from being employed as laborers.

Proviso.

Proviso.

Repeal.

Section 2. That all acts or parts of acts conflicting with the above section, be and the same are hereby repealed.

APPROVED, June 14, 1872.

A SUPPLEMENT

To an act to relieve laborers, workingmen, and journeymen under the criminal laws of this Commonwealth, approved June 14, 1872.

How certain proviso is to be construed.

Section 1. Be it enacted, &c., That the second proviso in the first section of said act, which reads as follows: "That nothing herein contained shall prevent the prosecution and punishment, under existing laws, of any person or persons who shall hinder persons who desire to labor for their employers from so doing, or others persons from being employed as laborers," shall be so construed that the use of lawful or peaceful means, having for their object a lawful purpose, shall not be regarded as "in any way hindering" persons who desire to labor; and that the use of force, threat or menace of harm to persons or property, shall alone be regarded as in any way hindering persons who desire to labor for their employers from so doing or other persons from being employed as laborers.

Repeal.

Section 2. That all acts or parts of acts inconsistent herewith be and the same are hereby repealed.

APPROVED, April 20th, 1876.

MINERS' WAGES.

AN ACT

To protect miners in the bituminous coal regions of this commonwealth.

Section 1. Be it enacted, &c., That after the period of three months, from the passage of this act, any miner employed by an individual, firm or corporation for the purpose of mining coal, shall be entitled to receive from his employer, and failing to receive, then to collect by due process of law, at such rates as may have been agreed upon between the employer and the employed, full and exact wages accruing to him for the mining of all sizes of merchantable coal so mined by him, whether the same shall exist in the form of nut or lump coal: and in the adjudication of such wages seventy-six pounds shall be deemed one bushel, and two thousand pounds, net, shall be deemed one ton of coal; that the provisions of this act shall only apply to the counties of Allegheny, Lawrence, Butler, Beaver, Mercer, Westmoreland, Fayette and Washington: *Provided*, That nothing contained in this act shall be construed to prevent operators and miners contracting for any method of measuring and screening the coal mined by such miners as they may select.

Miners' wages regulated.

Contents of a bushel and ton of coal.

Where applicable.

Method of measuring may be fixed by contract.

Section 2. That at every bituminous coal mine in the counties aforesaid where coal is mined by measurement, all cars filled by miners or their laborers shall be uniform in capacity at each mine; no unbranded car or cars shall enter the mine for a longer period than three months without being branded by the sealer of weights and measures of the county wherein the mine is situated.

Cars to be uniform in capacity.

To be branded.

Section 3. That at every bituminous coal mine in the aforesaid counties the miners shall have the right to employ a competent person as check-weighman, who shall be permitted at all times to be present at the weighing of coal. It shall be a further duty of said check-weighman to see that each miner is correctly credited with all merchantable coal mined by him. When differences arise between the check-weighman and the agent or owners of the mine as to the uniformity, capacity or correctness of scales or cars used, the same shall be referred to the sealer of weights and measures of the county where the mine is located, whose duty it shall be to regulate the same at once, and in the event of said scales and cars proving to be correct, then the party or parties applying for the testing thereof, to bear all costs and expenses thereof, but if not correct, then the owner or owners

Check weighman may be employed.

His duties.

Duty of sealer of weights and measures.

How paid.

of said mine to pay the costs and charges of making said examination.

APPROVED, March 25th, 1873.

AN ACT

Fixing a common basis from which to calculate the earnings of miners or persons working in coal mines.

Scales to be provided at each anthracite mine.

Section 1. Be it enacted, &c., That all persons, partnerships, associations, and corporations engaged in the mining of anthracite coal in this commonwealth, shall provide and erect, at each of their coal mines or collieries, standard and lawful scales for weighing the coal mined therein; and each and every miner's coal shall be separately and accurately weighed on said scale before said coal is dumped and taken from the car on which said miner loaded it in the said mine or colliery, and a separate and an accurate account shall be kept by all said persons, partnerships, associations and corporations of the number of pounds of coal mined by each miner as aforesaid; and the miners in each mine shall have the right to employ, at their own expense, and keep a weighmaster at each of said scales to inspect said scales, and also keep an account of the number of pounds of coal mined by each miner; and the miners at each mine or colliery shall be paid at the rate of so much per pound for amount of coal mined by them, and the pound weight shall be the basis from which to calculate the earnings at all mines or collieries: *Provided*, That the provisions of this act shall apply to mines or collieries in which the coal mined has heretofore been paid for by the car, and that this act shall not go into effect until sixty days after its approval by the Governor: *And provided further*, That if any of said persons, partnerships, associations or corporations shall neglect or refuse to comply with the provisions of this act, he or they so neglecting or refusing shall forfeit and pay, for every day said neglect or refusal after said sixty days, to the commonwealth of Pennsylvania the sum of one hundred dollars, the same to be sued for and recovered in an action of debt in the court of common pleas having jurisdiction of the territory in which said mines or collieries may be situate, the writs in said action to be served on the said persons, partnership, association or corporation, or the superintendents, agents or clerks of said persons, partnerships, associations or corporations resident within the jurisdiction of said court: *And provided further*, That the

Coal to be weighed and account kept.

Miners may employ weigh master.

To be paid by the pound.

How act to apply.

Penalty on persons, partnerships, &c., for not complying with act.

provisions of this act shall not apply to or embrace any persons, partnerships, associations or corporations that may or shall by any contract agree with his or their miners in any of said mines or collieries, otherwise than is provided in this act, for the compensation of mining the same, and no penalty provided therein shall apply to such persons, partnerships, associations or corporations so contracting or agreeing.

When not applicable.

Section 2. That all acts or parts of acts inconsistent herewith are hereby repealed.

Repeal.

Approved, March 30th, 1875.

CORPORATION STORES.

AN ACT

To provide for the incorporation and regulation of certain corporation.

Section 43. Every manufacturing, mining or quarrying company incorporated under the provisions of this act shall be confined exclusively to the purposes of its creation, as specified in its charter, and no such company shall manufacture or sell any commodity or articles of merchandise other than those therein specified. No such company shall engage in nor shall it permit any of its employés or officials to engage in the buying or selling upon the lands possessed by it of any wares, goods or commodities or merchandise, other than those specified in their charter or necessary for the manufacture of the same. No such company shall permit to be withheld or authorize or direct the withholding of wages due any of its operatives or employés by reason of the sale or furnishing of goods, wares or merchandise by any person to such operatives or employés, unless the same be withheld by reason of and in obedience to due process of law; but nothing herein contained shall prohibit any such company from supplying to its employés oil, powder and other articles and implements necessary for or used in mining.

Mining, manufacturing and quarrying companies, to be confined to purposes for which created.

Not to buy or sell merchandise other than specified in charter.

Not to withhold wages of operatives for merchandise furnished them.

Approved, April 29, 1874.

PROTECTION OF WAGES OF MECHANICS, MINERS, LABORERS, AND OTHERS.

AN ACT

For the better protection of the wages of mechanics, miners, laborers, and others.

Wages for six months preceding sales, &c., a lien.

Section 1. Be it enacted, etc., That all moneys that may be due, or hereafter become due, for labor and services rendered by any miner, mechanic, laborer, or clerk, from any person or persons, or chartered company, employing clerks, miners, mechanics, or laborers, either as owners, lessees, contractors, or under owners of any works, mines, manufactory, or other business where clerks, miners, or mechanics are employed, whether at so much per diem or otherwise, for any period not exceeding six months immediately preceding the sale and transfer of such works, mines, manufactories, or business, or other property connected therewith in carrying on said business, by execution or otherwise, preceding the death or insolvency of such employer or employers, shall be a lien upon said mine, manufactory, business or other property in and about, or used in carrying on the said business, or in connection therewith, to the extent of the interest of said owners or contractors, as the case may be, in said property, and shall be preferred and first paid out of the proceeds of the sale of such mine, manufactory, business, or other property as aforesaid: *Provided*, That the claim of such miner, mechanic, laborer, and clerk thus preferred, shall not exceed two hundred dollars: *And provided further*, That this act shall not be so construed as to impair contracts existing or liens of record vested prior to its passage: *And provided further*, That no such claim shall be a lien upon any real estate, unless the same be filed in the prothonotary's office of the county in which such real estate is situated, within three months after the same becomes due and owing, in the same manner as mechanics' liens are now filed.

To be first paid out of proceeds of sales.

Claims not to exceed $200.

Not to impair existing contracts or vested liens.

Claims to be filed in prothonotary's office within three months.

Claimants to give notice of claims to officers executing writs for sale.

Section 2. In all cases of executions, landlord's warrants, attachments, and writs of a similar nature hereafter to be issued against any person or persons, or chartered company, engaged as before mentioned, it shall be lawful for such miners, laborers, mechanics, or clerks, to give notice in writing of their claim or claims, and the amount thereof, to the officers executing either of such writs, at any time before the actual sale of the property levied on; and such officers shall pay to such miners, laborers, mechanics, and

Officers to pay claims out of proceeds of sale.

clerks, out of the proceeds of sale, the amount each is justly and legally entitled to receive, not exceeding two hundred dollars.

Section 3. In all cases of the death, insolvency, or assignment of any person or persons, or chartered company, engaged in operations as hereinbefore mentioned, or of executions issued against them, the lien of preference mentioned in the first section of this act, with the like limitations and powers, shall extend to every property of said persons or chartered company.

Preference in cases of death, insolvency, or assignment.

Section 4. That no mortgage, or other instrument by which a lien is hereafter credited shall operate to impair or postpone the lien and preference given and secured to the wages and moneys mentioned in the first section of this act: *Provided*, That no lien of mortgage or judgment entered before such labor is performed shall be affected or impaired thereby.

Other liens not to postpone preference given to wages.

Prior liens not to be impaired.

Section 5. That in all cases of appeal from the judgment of justice of the peace for wages or moneys mentioned in the first section of this act, the party appellant, his agent or attorney, shall make oath or affirmation, that it is not for the purpose of delay that such appeal is entered, but because he firmly believes injustice has been done; the bail required in cases of appeal from the judgments of justices of the peace, and from the awards of arbitrators for the wages and moneys mentioned in the first section of this act, shall be bail absolute in double the amount of said judgments and awards, and the probable amount of costs accrued and likely to accrue in such cases, with one or more sufficient sureties, conditioned for the payment of the amount of the debt, interest and cost that shall be legally recovered in such cases against the appellant.

Parties appealing from judgments of justices to make oaths.

Bail.

Section 6. That all laws or parts of laws inconsistent herewith be and the same are hereby repealed.

Repeal.

APPROVED, April 9, 1872.

A SUPPLEMENT

To an act for the better protection of the wages of mechanics, miners, laborers and others, approved April 9, 1872.

Section 1. Be it enacted, &c., That the proviso to the fourth section of an act, entitled "An act for the better protection of the wages of mechanics, miners, laborers and others," approved April 9, 1872, shall not hereafter be so construed as to in any manner apply to coal lease mortgage

Coal lease mortgages not to have preference of lien for wages.

or mortgages, or to make the same a lien preferred to the lien of the wages of labor mentioned in said act, but that such claim of wages shall be a lien preferred thereto.

Claim not required to be filed within three months after same becomes due.

Section 2. That the last proviso of the first section of said act, which is as follows: "No such claim shall be a lien upon any real estate, unless the same be filed in the prothonotary's office of the county in which such real estate is situated, in the same manner as mechanics' liens are now filed," be and the same is hereby repealed.

Repeal.

Section 3. That all acts or parts of acts inconsistent herewith are hereby repealed.

APPROVED, May 8, 1874.

AN ACT

In relation to suits for wages, preventing stay of execution on judgments obtained for one hundred dollars or less.

Section 1. Be it enacted, &c., That no stay of execution shall be allowed on any judgment for one hundred dollars and less, when the same has been recovered for wages of manual labor.

APPROVED, May 14th, 1874.

AN ACT

Regulating appeals from the judgment of justices of the peace and aldermen in this commonwealth for the wages of manual labor, and prescribing the effect of voluntary assignments upon claims for the wages of labor, secured by an act for the better protection of the wages of mechanics, miners, laborers and others, approved April 9th, 1872.

Appellants to take oath.

Section 1. Be it enacted, &c., That in all cases in which judgment shall have been rendered by any justice of the peace or alderman in this commonwealth for wages of manual labor, that before the defendant shall be entitled to an appeal from the judgment of the justice or alderman, he or his agent or attorney, shall make oath or affirmation that the appeal is not intended for the purpose of delay, but that he believes that injustice has been done him, which affidavit shall be attached to and sent up with the transcript of appeals; and the said defendant shall be required to give good and sufficient bail for the payment of the debt and costs, to be paid when finally adjudged to be due the plaintiff by the Court in all cases of labor.

To be attached to transcript.

Bond to be given.

Assignments not to delay collection of claims longer than thirty days.

Section 2. That no voluntary assignment for the benefit of creditors shall operate so as to hinder, delay or prevent for a longer period than thirty days from the time of such assignment, the collection or enforcement of any of the claims for the wages of labor secured and protected by the act for the better protection of the wages of mechanics, miners, laborers and others, approved the ninth day of April, 1872, or its supplements; and the said claimants may, after the expiration of thirty days from the date of such assignment, enforce the collection of their claims in the same manner and by means of the same remedies that they might have done had no such assignment been made.

Provisions relative to assignments heretofore made.

Section 3. In all cases of voluntary assignments heretofore made and now remaining unsettled, and in which the assignee or assignees has or have more than five months within which to settle his or their account or accounts, any or all of the claimants protected by the provisions of the aforesaid act or its supplements, may, immediately after the passage of this act, proceed to collect such claims just as though no such assignment had been made; and in case such assigned property has already been sold, and the assignee or assignees refuse to pay such claimants the amount legally due them, they shall have the right to compel him or them to file his or their account, and may proceed to have said claims paid by a distribution through an auditor or auditors according to law: *Provided however*, That the owner or owners of such assigned property or the assignee or assignees or any interested party may pay to such claimants the amount of the claims so protected by said act or its supplements, and be subrogated to the rights of the claimants to the extent of such payments.

Section 4. All acts or parts of acts inconsistent herewith are hereby to such extent repealed.

APPROVED, April 20th, 1876.

AN ACT

Giving priority in the trial of all claims for the wages of manual labor in the courts in this commonwealth.

Section 1. Be it enacted, &c., That in all cases now pending, or which may hereafter be brought, before any court in this commonwealth, for the recovery of the wages of manual labor only, it shall be the duty of the prothonotary preparing the list of civil cases to place all claims for the wages of labor first on the list, and the court shall proceed

to try all such cases as they occur on the list: *Provided*, That a statement of the plaintiff's claim be filed in such cases, showing that the claims respectively are for manual labor alone.

APPROVED, March 22d, 1877.

A FURTHER SUPPLEMENT

To an act, entitled "An act for the better protection of the wages of mechanics, laborers and others," passed the ninth day of April, 1872.

Laborers claims to have preference of claims for rent, where lessee is the employer.

Section 1. Be it enacted, &c., That it is the true intent and meaning of the provisions of the act of assembly entitled "An act for the better protection of the wages of mechanics, miners, laborers and others," passed the ninth day of April, 1872, that the several classes of laborers in said act mentioned shall have a preference over landlords, in all claims for rent of any mines, manufactories or other real estate, held under lease, where the lessee or lessees are the parties employing the miners, mechanics, laborers or clerks: *Provided*, That any person or persons claiming a preference as above provided, shall give notice of the nature and amount of his claim to the landlord or his bailiff, before the actual sale of the property levied upon.

APPROVED, June 12th, 1878.

AN ACT

To enable laborers to secure and collect their pay for work done in and about the stocking of saw-logs.

Wages of laborers to have priority.

Section 1. Be it enacted, &c., That all moneys that may be due from any person or persons to any and every laborer, for work done in and about the cutting, peeling, skidding, hauling and driving of saw-logs, for a period not exceeding six months prior to the death or assignment for the benefit of creditors of the employer or employers, or to a sale of said saw-logs upon execution, process against said employer, or employers, shall be preferred and first paid out of the proceeds of any executor's, administrator's, assignee's, sheriff's or other officer's sale of said saw-logs as the property of the employer or employers: *Provided*, That not more than two hundred dollars to any one laborer shall be preferred under this act.

Limitation.

Notice of claims to be given before sales.

Section 2. It shall be the duty of every laborer claiming a preference under this act, by himself, his agent or attorney, to give notice in writing of the amount of his claim,

before the sale, to the executors, administrators, assignee, sheriff, or other officer whose duty it shall be to sell said saw-logs, otherwise his claim shall not be preferred under this act.

Court to hear and determine disputes.

Section 3. When there shall be any dispute concerning the right of any laborer to be preferred as aforesaid, or as to the amount he shall be entitled to receive, the court having jurisdiction of the accounts of the officer making the sale, or of the process under which the sale is made, shall have power, after reasonable notice given either personally or by advertisement, to hear and determine the same according to law and equity.

Section 4. When work as aforesaid shall have been done for a contractor or contractors and not for the owner or owners of saw-logs, it shall be lawful for the owner or owners to make payments of any moneys due to any laborer or laborers for such work, directly to such laborer or laborers; and any payment or payments so made, shall be a good charge against the contractor or contractors in favor of the owner or owners in the settlement of their accounts.

APPROVED, June 12th, 1879.

INSPECTION OF MINES—ANTHRACITE.

AN ACT

Providing for the health and safety of persons employed in anthracite coal mines.

Owners or agents to cause maps of workings of mines to be made.

Section 1. Be it enacted, etc., That the owner or agent of every anthracite coal mine or colliery shall make, or cause to be made, an accurate map or plan of the workings of such coal mine or colliery, on a scale of one hundred feet to the inch; and when there is more than one seam of coal worked in said coal mine or colliery, the map or plan shall exhibit the workings in each seam of coal, and shall state the general inclination of the strata, with any material deflection therein in said workings, and the boundary lines of the lands of said coal mines or colliery; a true copy of which map or plan, the said owner or agent shall deposit with the inspectors of coal mines and collieries for the district in which the coal mine or colliery is situated, within four months from the passage of this act, and one copy shall be kept at the office of each colliery; and the said owner or agent shall furnish to the inspector aforesaid, on the first day of January and July, in every year hereafter, a statement, or map or plan of the progress of the workings of such

Copies, with whom deposited, etc.

To furnish inspector statement of progress of workings on certain days.

coal mine or colliery, during the year past, up to date, to enable the inspector to mark the same upon the map or plan of the coal mine or colliery, furnished and deposited with said inspector as hereinbefore provided for; and when any coal mine or colliery is worked out, preparatory to being abandoned, when any level or lift thereof is being finished, with a view and for the purpose of being abandoned, or when any of the pillars therein are to be removed, the owner or agent of such coal mine or colliery shall have the map or plan thereof furnished as hereinbefore provided, or such portions thereof as the case may require, carefully verified, and notice shall be given to the inspector of coal mines and collieries for the district, in writing, of the purpose to abandon or remove the pillars, as the case may be.

To furnish plan and notify inspector before abandoning mines, etc.

Section 2. That whenever the owner or agent of any coal mine or colliery shall neglect or refuse, or from any cause fail for the period of two months, to furnish to the inspector the map or plan, or the addition thereto provided for in the first section of this act, or if the inspector finds or has reason to believe, that any plan or map of any coal mine or colliery furnished him under the provisions of this act, is materially inaccurate or imperfect, he is hereby authorized to cause an accurate map or plan of the actual workings of such coal mine or colliery to be made, at the expense of the owner thereof, the cost of which shall be recoverable by law, as other debts are, from said owner.

In what cases inspectors may have maps made at expense of owners.

Section 3. That four months from and after the passage of this act, it shall not be lawful for the owner or agent of any anthracite coal mine or colliery, worked by or through a shaft or slope, to employ any person in working within such coal mine or colliery, or to permit any person to be in such coal mine or colliery, for the purpose of working therein, unless there are in communication with every seam or stratum of coal worked in such coal mine or colliery, for the time being at work, at least two shafts, or slopes, or outlets, separated by natural strata, of not less than one hundred and fifty feet in breadth, by which shafts, slopes or outlets distinct means of ingress and egress are always available to the persons employed in the coal mine or colliery; but it shall not be necessary for the two shafts, slopes, or outlets to belong to the same coal mine or colliery, if the persons therein employed have ready and available means of ingress or egress by not less than two shafts, slopes or outlets, one or more of which may belong to another coal mine or colliery: *Provided*, That a second open-

Employment of persons in mines worked by shaft, etc., prohibited unless two outlets to each coal seam.

In what cases unnecessary for two outlets to belong to same mine.

ing can be had through coal; but if a tunnel or shaft will be required for the additional opening, work upon the same shall commence immediately after the passage of this act, and continue until its final completion, with not less than three shifts in each twenty-four hours, and as many hands to be employed as can be put to work to advantage, the inspector to be the judge as to the least number of hands engaged per shift; this section shall not apply to opening a new coal mine or colliery, nor to any working for the purpose of making a communication between two or more shafts, slopes or outlets, so long as not more than twenty persons are employed at any one time in said new mine or working; and the term owner, used in this act, shall mean the immediate proprietor, lessee or occupier of a coal mine or colliery, or of any part thereof; and the term agent shall mean any person having, on behalf of the owner, the care or direction of a coal mine or colliery, or of any part thereof.

If tunnels, etc., be required for additional opening, work upon the same to commence at once.

Section not to apply to opening new mines, etc.

Terms "owner" and "agent," construed.

Section 4. The owner or agent of any coal mine or colliery, to which there is only one shaft, slope, or outlet, may petition the court of common pleas in and for the county in which such coal mine or colliery is situated, which said court is hereby empowered to act in the premises, setting forth that in consequence of intervening lands between the working of his coal mine or colliery and the most practicable point, or the only practicable point, as the case may be, at which to make or bring to the surface from the working of his mine, he is unable to make an additional shaft, slope, or outlet, in accordance with the requirements of this act; whereupon the court may make an order of reference, and appoint three disinterested persons, residents of the county, viewers, one or more of whom shall be practical mining engineers; all of whom, after being sworn to a faithful discharge of their duties, shall view and examine the premises, and determine as to whether the owner ought, or ought not, under the circumstances, to have the privilege of making an additional outlet through or upon any intervening lands, as the case may require, and report in writing to the next term of the court, which report shall be entered and filed of record; if the finding of the viewers, or any two of them is in favor of the owner of such coal mine or colliery, he may make an additional shaft, slope, or outlet, under, through, or upon intervening lands, as may be determined upon and provided for by the award; if the finding of the viewers is against the owner, or if no award be made, by reason of any default or neglect on the part of the owner, he shall be

Proceedings to obtain authority to make additional outlet upon intervening lands.

bound to comply with the provisions of this act, in the same manner as if this section had not been enacted; in case the said owner or agent desires to, and claims that he ought to make an additional opening under, through, or upon any adjoining or intervening lands, to meet the requirements of this act, for the ingress or egress of the men employed in his or their coal mine or colliery, he or they shall make a statement of the facts in the petition, with a survey setting out the point of commencement and the point of termination of the proposed outlet, which he or they, their engineers, agents, and artists may enter upon said intervening land and survey, and mark as he or they shall find it proper to adopt for such additional outlet, doing no damage to the property explored; and the viewers shall state in their report what damage will be sustained by the owner or owners of the intervening lands by the opening, constructing, and using of the outlet, and if the report is not appealed from, it shall be liable to be confirmed or rejected by said court, as to right and justice shall appertain; and any further and all proceedings in relation thereto shall be in conformity with like proceedings as in the case of a lateral railroad across or under intervening lands, under the act in relation to lateral railroads, approved the fifth day of May, one thousand eight hundred and thirty-two, and the supplements thereto, so far as the provisions of the same are applicable hereto; and the notices to the owner of intervening lands of the intention to apply for the privilege of making an outlet and of the meeting of the viewers shall be given, and the costs of the case shall be paid, as provided in the said act of the fifth of May, eighteen hundred and thirty-two, and the supplements thereto.

Courts, upon application of inspectors, to prohibit workings of mines in contravention of act.

Section 5. Any of the courts of law or equity of this commonwealth, having jurisdiction where the coal mine or colliery proceeded against is situated, upon application of the inspector of coal mines and collieries of the proper district, acting in behalf of the commonwealth, shall prohibit by injunction or otherwise, the working of any mine in which any person is employed in working, or is permitted to be for the purpose of working in contravention of the provisions of this act, and may award such costs in the matter of the injunction or other proceeding as the court may think just; but this section shall be without prejudice to any other remedy permitted by law for enforcing the provisions of this act.

Building for use of men to be erected at mouth of mine.

Section 6. The owner, lessee, operator or agent of every coal mine or colliery, shall erect or provide, at or near the mouth or entrance to such mine, and maintain the same at all times when men are employed in such mine, a suitable building or buildings, supplied with soft water and properly lighted and warmed, for the use of the men employed in such mine, to wash and change their clothes when entering the mine and when returning therefrom.

Owners or agents to have mines properly ventilated.

Section 7. The owners or agent of every coal mine or colliery shall provide and establish for every such coal mine or colliery an adequate amount of ventilation of not less than fifty-five cubic feet per second of pure air, or thirty-three hundred feet per minute for every fifty men at work in such mine, and as much more as circumstances may require, which shall be circulated through to the face of each and every working place throughout the entire mine, to dilute and render harmless and expel therefrom the noxious, poisonous gases to such an extent that the entire mine shall be in a fit state for men to work therein, and be free from danger to the health and lives of the men by reason of said noxious and poisonous gases, and all workings shall be kept clear of standing gas; the ventilation may be produced by using blowing engines, forcing pumps, air pumps, forcing or suction fans of sufficient capacity and power, or other suitable appliances, as to produce and insure constantly an abundant supply of fresh air throughout the entire mine; but in no case shall a furnace be used in the mine where the coal breaker and schute buildings are built directly over and covering the top of the shaft for the purpose of producing a hot upcast of air, and there shall be an intake air-way of not less than twenty square feet area, and the return air-way shall not be less than twenty-five square feet.

Ventilation, how produced.

Use of furnace, etc.

Mining boss, and his duties.

Section 8. The better to secure the ventilation of every coal mine and colliery, and to provide for the health and safety of the men employed therein, otherwise and in every respect, the owner or agent, as the case may be, in charge of every coal mine or colliery, shall employ a competent and practical inside overseer, to be called mining boss, who shall keep a careful watch over the ventilating apparatus, over the air-ways, the traveling-ways, the pumps and sumps, the timbering, to see, as the miners advance in their excavations, that all loose coal, slate or rock overhead is carefully secured against falling over the arrangements for signalling from the bottom to the top and from the top to the bottom of the shaft or slope, for the purpose of talking

through, and all things connected with and appertaining to the safety of the men at work in the mine; he or his assistants shall examine carefully the working of all mines generating explosive gases every morning before the miners enter the coal mine or colliery, and shall ascertain that the mine is free from danger; and the workmen shall not enter the mine until such examination has been made and reported, and the cause of danger, if any exist, be removed; and he or his assistant shall also, every evening, when the workmen leave the mine or colliery, go over the mine and see that the doors of the passage ways are all properly closed and that all the air ways are free and unobstructed to the passage of air through them; and it shall be the duty of the mine boss to measure the ventilation at least once per week at the inlet and outlet, also at or near the face of all gangways; and all measurements to be reported to the inspector once per month.

Safety-lamps.

Section 9. All and every of the safety-lamps used in coal mines or collieries shall be the property of the owner thereof, and shall be under the charge of a suitable person, under direction of the mining boss, who shall keep them clean and in good order; and the mining boss shall provide that

Doors.

all doors used in assisting, or in any way affecting ventilation of the mine, shall be so hung and adjusted as that they will close of their own accord, and cannot stand open; and the main air doors on the traveling roads shall be double, and an extra door shall be fixed, to be closed only in case of an accident to one of the others, and the side and top of such door shall be well built with stones and mortar, in mines in which the inspector shall deem it necessary and shall so order; and all main doors shall be provided with an attendant, whose constant duty shall be to guard them and prevent them being left open; and every mine having explosive gas, in each and every part of such mine or mines, shall be divided into two, four or more panels or districts, each ventilated by a separate spit or current of air, and fifty persons shall be the greatest number that shall work in any one panel or district at the same time; and bore holes shall be kept twenty feet in advance of the face of each and every place, and if necessary, on both sides, when the same is driven towards or approaching an abandoned mine, or part of mine suspected to contain inflammable gases, or which is inundated with water.

Mines containing explosive gases, how divided, etc.

When bore holes to be kept certain distance in advance of face or sides.

Section 10. The owner or agent of every coal mine or colliery, opened and operated by shaft or slope, shall pro-

vide and maintain a metal tube from the top to the bottom of such slope or shaft, suitably calculated and adapted to the free passage of sound therein, through which conversation may be held by and between persons at the bottom and the top of the shaft or slope, and also the ordinary means of signalling from and to the top of the shaft from the bottom, and also provide an improved safety-catch and a sufficient cover overhead on every carriage used for lowering or hoisting persons; and they shall provide and arrange the flangs or horns of sufficient dimensions are attached to the sides of the drum of every machine that is used for lowering or hoisting persons in or out of every mine; an adequate break shall be attached to every drum or machine worked by steam or water power that is or will be used for lowering or raising into or out of any said mines, and the main link attached to the swivel of the wire, or any other rope, shall be made of the best quality of iron and tested by weights, or otherwise satisfactorily to the inspector, and bridle chains shall be attached to the main link from the cross pieces of the carriage, and no single link chain shall be used for lowering or raising persons into or out of any said mines; and no boy under twelve years of age shall work or enter any mine, and proof must be given of his age by certificate or otherwise, before he shall be employed; and no father or any other person shall conceal or misrepresent the age of any boy; the neglect or refusal of any person or party to perform the duties provided for and required to be performed by sections six, seven, eight, nine and ten of this act, by the parties therein required to perform them, shall be taken and be deemed a misdemeanor by them, or either or any of them, and upon conviction thereof they or any or either of them shall be punished by imprisonment and fine of not exceeding five hundred dollars, or either, at the discretion of the court trying the same.

Mines worked by shaft or slope to be provided with metal tubes for conversing through, etc.

Lowering and hoisting machine, relative to.

Boys under certain age not to work in mines.

Neglect to perform duties required by certain sections.

Section 11. No owner or agent of, or at any coal mine or colliery operated by shaft or slope, shall place in charge of any engine whereby the men are lowered into or hoisted out of the mine, any but experienced, competent, sober engineers; and every engineer so placed in charge of an engine shall constantly attend to the engine of which he has charge, and shall not allow any person, except such as may be deputed by the operator or agent, to touch or meddle with it or any part of its machinery; he shall work the engine slowly with great care when any person is ascending or descending the shaft or slope, and when any person is about to descend or

Qualifications and duties of engineers in charge of lowering and hoisting engines.

ascend the shaft or slope, the men at the bottom, or top, as the case may be, must inform the engineer, by the metal tube, the signal, or otherwise, thereof; and no one shall interfere with, or in any manner intimidate, the engineer in the discharge of his duties, nor ride upon a loaded wagon or cage, in any shaft or slope, and in no case shall more than ten men ride on any wagon or cage at one time in any of the said mines; and upon any person violating the provisions of this section he shall be held and deemed guilty of a misdemeanor, and upon conviction thereof he shall be punished by fine and imprisonment, at the discretion of the court trying the same.

Interfering with engineers, riding upon loaded wagons in shafts, etc., prohibited.

Persons in charge of mines to notify inspectors and coroners when accidents occur.

Section 12. Whenever loss of life, or serious personal injury to any person shall occur, by reason of any explosion or other accident whatever, in or about any coal mine or colliery, it shall be the duty of the party having charge of such coal mine or colliery to give notice thereof forthwith, by mail or otherwise, to the inspector of coal mines and collieries for the district, and to the coroner of the county, if any person is killed thereby; and due notice shall be given, by the coroner, or any inquest to be held as the result of any such explosion or accident; and it shall be the duty of the said inspector to immediately repair to the scene of the accident and make such suggestions as may appear necessary to secure the safety of the men; and if the results of the explosion do not require an investigation by the coroner, he shall investigate into and ascertain the cause of the explosion or accident, and make a record thereof, which he shall preserve with other records of his office; and to enable him to make the investigations, he shall have power upon such occasions to compel the attendance of persons to testify, and to administer oaths or affirmations thereto; the cost of which investigation shall be paid by the county in which the accident occurred, in the same manner as costs of inquests held by the coroner or justices of peace are now paid; and the failure of the person in charge of the coal mine or colllery, to give notice to the inspector or coroner, as provided for in this section, shall subject him to a fine of not less than twenty-five, nor more than one hundred dollars, to be recovered as other fines are to the county treasury.

Duty of inspectors

Powers of inspectors.

Payment of costs of investigations.

Failure to notify inspectors, etc.

Boilers to be kept in good order and inspected.

Section 13. All boilers used for generating steam in and about coal mines or collieries shall be kept in good order, and the owner or agent thereof shall have them examined and inspected by a competent boiler-maker, or other well

qualified person, as often as once in six months, and oftener if needed, and the result of every such examination, under oath shall be certified in writing to the inspector for the district; and all machinery in and about the mines, and especially in the coal breakers, where boys work, shall be properly fenced off, and the top of each shaft shall be securely fenced by vertical or flat gates, covering the area of said shaft, and the entrance of every abandoned slope, and air or other shaft, shall be securely fenced off.

Machinery in mines, tops of shafts, etc., to be fenced off.

Section 14. Upon the passage of this act, the governor of the commonwealth of Pennsylvania shall, upon the recommendation of a board of examiners, selected for that purpose, composed of three reputable coal miners in practice, and two reputable mining engineers, to be appointed by the judges of the court of common pleas of Luzerne county, all of whom shall be sworn to a faithful discharge of their duties, appoint three properly qualified persons to fill the offices of inspectors of coal mines and collieries for the counties of Luzerne and Carbon, whose commissions shall be for a term of five years or during good behavior, but they shall at all times be subject to removal from office for neglect of duty or malfeasance in the discharge of duty, as hereinafter provided for, and the persons so appointed shall have attained the age of thirty years, be citizens of Pennsylvania, and have a knowledge of the different systems of working coal mines, and have been intimately connected with the anthracite coal mines of Pennsylvania for a period of five years, and have had experience on the working and ventilation of coal mines where fire-damp and noxious gases are evolved; before entering upon their duties they shall take an oath or affirmation, before an officer qualified to administer the same, that they will perform the duties of the office with impartiality and fidelity, which oath or affirmation shall be filed in the office of the prothonotary of the county; and they shall provide themselves with the most approved modern instruments and chemical tests for carrying out the intentions of this act; the examiners provided for in this act shall be appointed by the judges of the court of common pleas for the county at the first term of the court in each year, to hold their places during the year, and vacancies shall be filled by the court as they occur; and the said examiners shall meet whenever candidates for the office of inspector are to be appointed, of which meetings public notice shall be given in at least two papers published in the county, at least two weeks before the meeting, the exam-

Appointments, etc., of inspectors and examiners for Luzerne and Carbon counties.

iners shall agree in their recommendation of candidates to the governor, and they shall recommend only such as they find qualified for the office; the said examiners shall receive three dollars per day for every day they are actually engaged in the discharge of the duties of examiners under this act, to be paid to them by the county; one inspector shall be appointed for the district in the Wyoming coal field, Luzerne county, lying east of, and including Jenkins township, and one district shall be composed of that part of the Wyoming coal field lying west of Jenkins township and west of the Susquehanna river, and one other district shall be composed of that part of Luzerne county lying south of the Wyoming coal field, together with Carbon county.

Compensation of examiners.

Districts for which inspectors are to appointed.

Appointments, etc. of inspectors for Schuylkill, Dauphin, Northumberland and Columbia counties.

Section 15. The term of office of the inspector of coal mines, appointed under an act for the better regulation and ventilation of mines, and for the protection of the lives of miners in the county of Schuylkill, approved April twelfth, one thousand eight hundred and sixty nine, shall expire on the first day of June, Anno Domini, one thousand eight hundred and seventy, and in his room three inspectors of mines for the counties of Schuylkill, Dauphin, Northumberland and Columbia, shall be appointed by examiners to be appointed by the court of common pleas of Schuylkill county, in the manner and form provided by the fourteenth section of this act; and the said examiners and inspectors, when so appointed, shall be subject to like regulations and duties, and entitled to like privileges, franchises and salaries as are in said section provided for the examiners and inspectors for the counties of Luzerne and Carbon; and the inspectors for the said counties of Schuylkill, Dauphin, Northumberland and Columbia, shall be assigned to duty in separate districts in said counties, which said districts shall be laid out and fixed by the examiners, so as aforesaid to be appointed by the court of common pleas of the county of Schuylkill.

Removal of inspectors for neglect of duties, etc., relative to.

Section 16. It shall be the duty of the court of common pleas of the proper county, whenever a petition signed by not less than fifteen reputable coal operators or coal miners, or both, setting forth that any inspector of coal mines and collieries grossly neglects the duties, or that he is incompetent, or that he is guilty of malfeasance in office, to issue a citation in the name of the commonwealth, to the said inspector, to appear at not less than fifteen days' notice, on a day fixed, before said judges, when the said court shall

proceed to inquire into and investigate the allegations of the petitioners; and if the court find that the said inspector is grossly neglectful of his duties, or that he is by any reason of causes that existed before the appointment, or that have arisen since his appointment, incompetent to perform the duties of said office, or that he is guilty of malfeasance in office, the court shall certify the same to the governor of the commonwealth, who shall declare the office of inspector of the district vacant, and proceed in compliance with the provisions of this act, to appoint a properly qualified person to fill the office; and the cost of the said investigation, before the court, shall be borne by the removed inspector; but if the allegations of the petitioners are not sustained by the final judgment of the court, the costs shall be paid by the petitioners.

Salary of inspectors.

Section 17. The salary of the said inspectors appointed for Luzerne and Carbon counties shall be three thousand dollars each; the maps and plans of mines and the records thereof, together with all papers relating thereto, shall be kept by the inspector, properly arranged and preserved in a convenient place in the district for which each inspector shall have been appointed.

Custody of maps, etc.

Inspectors to give their whole time to duties of office.

Section 18. Each of the said inspectors of coal mines and collieries shall give his whole time and attention to the duties of the office, and it shall be his duty to examine all the coal mines and collieries in his district, as often as his duties will permit him to do so, to see that every necessary precaution is taken to secure the safety of the workingmen, to see that the provisions of this act are observed and obeyed; and it shall be each inspector's duty to attend at every inquest held by coroner or coroners in his district, upon bodies of persons killed in or about coal mines or collieries.

To attend coroner's inquests.

Penalty for injuring safety-lamps carrying lighted, pipes, etc.

Section 19. That any miner, workman, or other person, who shall knowingly injure any safety lamp, water guage, barometer, air-course, brattice, or obstruct or throw open air-ways, or carry lighted pipes or matches into places that are worked by safety lamps, or hand or disturb any part of the machinery of the hoisting engine, or open a door and not have the same closed, whereby danger is caused in the mine, or enter any place of the mine against caution, or disobey any order given in carrying this act, or shall ride upon a loaded car or carriage in any shaft or slope, or on any plane in or around any of said mines, or do any other act whereby the lives or health of persons, or the security of the mines or machinery, is endangered; or any miner

having charge of a working place in any coal mine or colliery, who shall neglect or refuse to keep the roof thereof properly propped and timbered, to prevent the falling of coal slate or rock, every such person shall be deemed guilty of a misdemeanor, and upon conviction shall be punished by imprisonment and fine at the discretion of the court.

Inspectors may enter mines at all reasonable times in performance of duties.

Section 20. It shall be lawful for any inspector to enter, inspect, and examine any coal mine or colliery of his district, and the works and machinery belonging thereto, at all reasonable times, by day or night, but so as not to impede or obstruct the working of the coal mine or colliery, and to make inquiry into and touching the state and condition of such coal mine or colliery, works and machinery, and the ventilation and drainage of such coal mine or colliery, and the mode of lighting or using lights in the same, and into all matters and things connected with or relating to the health and safety of the persons employed in or about the same, and especially to make inquiry whether the provisions of this act are complied with in relation to such coal mine or colliery; and the owner or agent of such coal mine or colliery is hereby required to furnish the means necessary for such entry, inspection, examination, and inquiry, of which the said inspector shall make an entry in the record in his office, noting the time and material circumstances of the inpection.

Certain persons prohibited from acting as inspectors.

Section 21. No person who shall act or practice as a land agent, or as a manager, viewer, or agent of any coal mine or colliery, or as a mining engineer, or be interested in operating any coal mine or colliery, shall at the same time act as inspector of coal mines and collieries under this act.

Inspectors to make report to Governor.

Section 22. It shall be the duty of each inspector to make an annual report of his proceedings to the governor of the commonwealth, at the close of every year, in which he shall fully enumerate all the accidents in and about the coal mines and colleries of his district, marking in tabular form those accidents producing death, or serious injury to persons, and the state of the workings of said mines with regard to the safety of the workmen therein, and to the ventilation thereof, and the result of his labors generally shall be fully set forth.

Salaries and expenses, how paid.

Section 23. The salaries of each of the inspectors of coal mines and colleries, and the expenses of carrying into execution the provisions of this act, shall be paid by the state treasurer, out of the treasury of the commonwealth, upon the warrant of the president judge of the court of common pleas of Luzerne county for the salaries of the inspector for

Luzerne and Carbon counties, and upon the warrant of the president judge of the court of common pleas of Schuylkill county, for the inspectors for the counties of Schuylkill, Columbia, Northumberland and Dauphin; and all inspectors under this act shall reside in the district for which they are appointed.

Section 24. That for any injury to person or property, occasioned by any violation of this act, or any willful failure to comply with its provisions by any owner, lessee or operator of any coal mine or opening, or on part of inspector to perform duty, a right of action shall accrue to the party injured, for any direct damages he may have sustained thereby; and in any case of loss of life, by reason of such violation or willful failure aforesaid, a right of action shall accrue to the widow and lineal heirs of the person whose life shall be lost, for like recovery of damages for the injury they shall have sustained. Right of action to accrue to parties for injuries occasioned by violation of act, etc.

Section 25. All laws of the commonwealth that are inconsistent with the provisions of this act are hereby repealed. Repeal.

APPROVED, the third day of March, Anno Domini 1870.

A SUPPLEMENT

To an act, entitled "An Act providing for the health and safety of persons employed in coal mines," passed March 3d, 1870.

Section 1. Be it enacted, etc., That inspectors of coal mines and collieries, provided for in the fourteenth section of the act, entitled "An Act providing for the health and safety of persons employed in coal mines," approved the third day of March, Anno Domini one thousand eight hundred and seventy, shall and may be appointed by a majority of the board of examiners provided for in said act; should said board of examiners disagree in their selection of inspector, the judge of the court of common pleas of said counties have the power to dissolve the said board and appoint a new board of like qualifications, as aforesaid. How inspectors to be appointed.

Section 2. All laws or parts of laws inconsistent with this act are hereby repealed. Repeal.

APPROVED, the 25th day of April, A. D. 1873.

A SUPPLEMENT

To an act, entitled "An Act providing for the health and safety of persons employed in coal mines," passed March 3, 1870.

Section 1. Be it enacted, &c., That the first section of the said act be amended so as to read as follows, namely: That

Accurate map or plan of workings.

the owner or agent of every anthracite coal mine or colliery shall make, or cause to be made, an accurate map or plan of the workings of such coal mine or colliery, on a scale of not more than one hundred feet to the inch, which map or plan shall exhibit the workings in each seam of coal, and shall state the general inclination of the strata, with any material defection therein in said workings, and shall truthfully and accurately show the boundary lines of the land of the said coal mines or colliery, and proximity of the workings to the lines of adjacent owners, a true copy of which map or plan the said owner or agent shall deposit with the inspectors of coal mines or collieries for the district in which the coal mine or colliery is situated, within four months from the passage of this act, and one copy shall be kept at the office of each colliery; and the said owner or agent shall furnish to the inspector aforesaid on the first day of January and July in every year hereafter, a statement or map or plan of the progress of the workings of such coal mine or colliery during the six months past up to date, to enable the inspector to mark the same upon the map or plan of the map, or plan of the coal mine or colliery furnished and deposited with said inspector as hereinbefore provided for, and when any coal mine or colliery is worked out preparatory to be abandoned, or when any local lift thereof is being finished with a view and for the purpose of being abandoned, the owner or agent of such coal mine or colliery shall have the map or plan thereof furnished as hereinbefore provided, or such portions thereof as the case may require, carefully verified, and notice shall be given to the inspector of coal mines and collieries for the district in writing of the purpose to abandon; and in case the said owner or agent shall neglect or refuse to furnish the maps or plans by this section required, or any of them, or shall knowingly and designedly cause such maps or plans when furnished to be incorrect or false, such owner or agent thus offending shall be guilty of a misdemeanor, and upon conviction shall be punished by a fine not exceeding five hundred dollars, or imprisonment not exceeding three months, at the discretion of the court.

Notice to inspector.

APPROVED, the 8th day of May, A. D. 1876.

AN ACT

To repeal a portion of the sixth section of an act for the preservation of the records of the inspection of mines and mining districts of Schuylkill and Luzerne, embracing the coal regions of Pennsylvania, passed March 3d, 1870.

Section 1. Be it enacted, etc., That section six of the act of Asssembly for the preservation of the records of the inspection of mines in the mining districts of Schuylkill and Luzerne, embracing coal regions of Pennsylvania, approved April fifth, Anno Domini, eighteen hundred and seventy, be amended by striking out the following words, namely: "And shall attain the age of thirty-five years" from said section so that said sixth section shall read: The said clerks shall be citizens of the United States of America, and shall be residents of the district for which they are appointed, and shall be conversant with the coal mines of their district for which they are appointed, and shall take an oath or affirmation before an officer properly qualified to administer the same, that he will faithfully discharge the duties of his office, to the satisfaction and under the direction of the judges of the courts, and as the interest of the people and the law requires, and shall, if discharged or removed, deliver over to the judges of the district, and to his successors, all papers, records, maps and things in his office, as the property of the State and district, and shall not be interested in the mining or transportation of coal.

Qualifications of clerks.

APPROVED, the 12th day of April, A. D. 1878.

AN ACT

To amend section fourteenth of an act entitled "An act to provide for the health and safety of persons employed in coal mines," passed March 3, 1870.

Section 1. Be it enacted, &c., That section fourteenth of an act, entitled "An act providing for the health and safety of persons employed in coal mines," be amended to read as follows: Upon the passage of this act the governor of the commonwealth of Pennsylvania shall, upon the recommendation of a board of examiners selected for that purpose, composed of three reputable coal miners in practice and two reputable mining engineers, to be appointed by the judges of the court of common pleas of Luzerne county, all of whom shall be sworn to a faithful discharge of their duties, appoint three properly qualified persons to fill the offices of inspectors of coal mines and collieries for the counties of Susquehanna, Wayne, Luzerne, and Carbon, whose commis-

Governor to appoint inspectors.

Terms of office. sions shall be for a term of five years or during good be-
Subject to removal havior; but they shall at all times be subject to removal from office for neglect of duty or malfeasance in the dis-
Qualifications. charge of duty, as hereinafter provided for, and the persons so appointed shall have attained the age of thirty years, be citizens of Pennsylvania, and have a knowledge of the different systems of working coal mines, and have been intimately connected with the anthracite coal mines of Pennsylvania for a period of five years, and have had experience in the working and ventilation of coal mines where fire-damp
To be sworn. and noxious gases are evolved. Before entering upon their duties they shall take an oath or affirmation before an officer qualified to administer the same, that they will perform the duties of the office with impartiality and fidelity, which oath or affirmation shall be filed in the office of the prothonotary of the county, and they shall provide themselves with
And provide themselves with tests. the most approved modern instruments and chemical tests
Appointment of examiners. for carrying out the intentions of this act. The examiners provided for in this act shall be appointed by the judges of the court of common pleas for the county, at the first term of court in each year, to hold their places during the year,
Meetings. and vacancies be filled by the court as they occur; and the said examiners shall meet whenever candidates for the office of inspector are to be appointed, of which meetings public notice shall be given in at least two papers published in the
To recommend candidates. county at least two weeks before the meeting; the examiners shall agree in their recommendation of candidates to the governor, and they shall recommend only such as they find
Compensation. qualified for the office; the said examiners shall receive three dollars per day for every day they are actually engaged in the discharge of the duties of examiners under this act, to
Districts. be paid to them by the county. One inspector shall be appointed for the district in the Wyoming coal fields, which shall include Luzerne county lying east of including Jenkins township, and also so much of the counties of Wayne and Susquehanna in which coal is mined or may hereafter be mined, and one district shall be composed of that part of the Wyoming coal fields lying west of Jenkins township and west of the Susquehanna river, and one other district shall be composed of that part of Luzerne county lying south of the Wyoming coal field, together with Carbon county.

APPROVED, the 18th day of May, A. D. 1878.

AN ACT

Amendatory of an act, entitled "An Act providing for the health and safety of persons employed in coal mines, passed March 3d, 1870.

Act amended.

Section 1. Be it enacted, &c., That section eleven of an act, entitled "An act for the health and safety of persons employed in coal mines" approved the third day of March, one thousand eight hundred and seventy, which reads as follows: "No owner or agent of or at any coal mine or colliery operated by shaft or slope, shall place in charge of any engine whereby the men are lowered into or hoisted out of the mine any but experienced, competent, sober engineers; and every engineer so placed in charge of an engine, shall constantly attend to the engine of which he has charge, and shall not allow any person, except such as may be deputed by the operator or agent, to touch or meddle with it or any part of its machinery; he shall work his engine slowly and with great care when any person is ascending or descending the shaft or slope; and when any person is about to descend or ascend the shaft or slope the men at the bottom or top, as the case may be, must inform the engineer by the metal tube, the signal or otherwise, thereof; and no one shall interfere with or in any way intimidate the engineer in the discharge of his duties, or ride upon a loaded wagon or cage in any shaft or slope; and in no case shall more than ten men ride on any wagon or cage at any one time in any of said mines; and upon any person violating the provisions of this section, he shall be held and be deemed guilty of a misdemeanor, and upon conviction thereof he shall be punished by fine and imprisonment at the discretion of the court trying the same," be amended so as to read as follows: No owner or agent of or at any coal mine or colliery operated by shaft or slope, shall place in charge of any engine whereby the men are lowered into or hoisted out of the mine any but experienced, competent, sober engineers; and every engineer so placed in charge of an engine shall constantly attend to the engine of which he has charge, and he shall not allow any person except such as may be deputed by the operator or agent to touch or meddle with it or any part of its machinery; he shall work his engine slowly and with great care when any person is ascending or descending the shaft or slope, and when any person is about to descend or ascend the shaft or slope, the men at the bottom or top, as the case may be must inform the engineer by the metal tube, the signal or otherwise, thereof; and no one shall interfere with or in any way intimidate the engineer in

Qualifications and duties of engineers

Penalty for interfering with engineers.

the discharge of his duties, nor ride upon a loaded wagon or cage in any shaft or slope; and whenever ten men shall have arrived at the bottom of any shaft or slope, they shall be furnished with an empty wagon or cage to ride up; and in no case shall more than ten men ride on any wagon or cage at one time in any of said mines; and upon any person violating the provisions of this section, he shall be held and be deemed guilty of a misdemeanor, and upon conviction thereof he shall be punished by fine and imprisonment at the discretion of the court trying the same.

Men to be provided with cage to ascend slope.

Penalty for violating act.

APPROVED, the 22d day of May, A. D. 1879.

INSPECTION OF MINES—BITUMINOUS.

AN ACT

Providing the means for securing the health and safety of persons employed in the bituminous coal mines of Pennsylvania.

Section 1. Be it enacted, etc., That the owner or agent of every bituminous coal mine or colliery, shall make or cause to be made, within six months after the passage of this act, an accurate map or plan of the workings of such coal mine or colliery, on a scale not exceeding one hundred feet to the inch, and showing the bearings and distances, which shall be kept for use of the inspector, in the office at the mine of said coal mine or colliery; and said owner or agent shall cause, on or before the tenth of January in every year, a plan of the progress of the workings of such coal mine during the year past to be marked on the original map or plan of the said coal mine or colliery, and the inspector shall have the right at all times to have possession of any such map or plan at the mines to draw a copy therefrom for his own convenience: *Provided*, If the owner or agent of any coal mine shall neglect or refuse, or from any cause fail, for the period of two months after the time prescribed, to furnish the said map or plan as hereby required, or if the inspector shall find or have reason to believe that any map or plan of any coal mine furnished in pursuance of the provisions of this act is materially inaccurate or imperfect, he is hereby authorized to cause a correct map or plan of the actual workings of said coal mine to be made at the expense of the owner thereof, the cost of which shall be recoverable from said owner as other debts are recoverable by law: *Provided*, That if the map or plan which he claimed to be incorrect shall prove to be correct, then afore-

Plans of mines to be made.

To be kept for the use of inspectors.

Plans or progress of mining.

When inspectors to prepare plans at expense of owners.

said expenses shall be paid by the said inspector and may be recovered from him in like manner.

Two openings to be made to each mine.

Section 2. It shall not be lawful, after six months from the passage of this act, for the owner or agent of any bituminous coal mine to employ any person at work within said coal mine, or permit any person to be in said coal mine for the purpose of working therein, unless they are in communication with at least two openings separated by natural strata of not less than one hundred and fifty feet in breadth, if the mine be worked by shaft or slope, and of not less than twenty-four feet if the mine be worked by drift: *Provided*, If the mine be worked by drift two openings inclusive of air shaft shall only be required, if the air shaft can be used for ingress or egress in case of emergency; and that not more than twenty persons shall be employed in the mine at any one time after the expiration of the six months until the second opening shall be reached and made available; and in case of furnace ventilation being used before the second opening is reached, the furnace shall not be placed within forty feet of the bottom of the shaft, and shall be well secured from danger from fire by brick or stone walls of sufficient thickness and the mine while being driven for making and perfecting a second opening; the owner or agent shall provide and maintain a metal tube from the top to the bottom of the slope or shaft, suitably adapted to the free passage of sound, through which conversation may be held between persons at the bottom and at the top of the shaft or slope, also the ordinary means of signaling to and from the top and bottom of the shaft or slope, and an approved safety catch and sufficient cover over head on every carriage used for lowering and hoisting persons; and the said owner or agent shall see that flanges or horns are attached to the sides of the drum of every machine that is used for lowering and hoisting persons in and out of the mine, and also that adequate brakes are attached thereto; the main link attached to the swivel of the wire rope shall be made of the best quality of iron, and shall be tested by weights or otherwise satisfactory to the inspector of mines of the district, and bridle chains shall be attached to the main link from the cross pieces of the carriage, and no single link chain shall be used for lowering or raising persons into or out of said mine, and not more than six persons shall be lowered or hoisted by the machinery at any one time; and only sober, competent and experienced engineers shall be employed.

Not more than 20 persons to be employed in mines until second opening is made.

Construction of furnaces.

Speaking tubes to be provided.

Also means of signaling.

Hoisting machines.

Qualifications of engineers.

One opening to be used for ingress and egress.

Section 3. When a second opening is made one opening shall be set apart exclusively for purposes of ingress or egress, and shall not be clogged or obstructed with machinery, pumps, or currents of heated air or steam; if the opening is a shaft it shall be fitted with safe and convenient stairs, at an angle of not more than sixty degrees descent, and with landings at easy and convenient distances; all water coming from the surface or out of the strata in the shaft shall be conducted by rings or otherwise, to be prevented from falling down the shaft so as to wet persons who are ascending and descending the stairway of the shaft; if the opening is a slope, it shall be provided with safe and available traveling ways.

Ventilation of mines.

Section 4. The owner or agent of every bituminous coal mine, whether shaft, slope or drift, shall, within six months after the passage of this act, provide, and thereafter maintain for every such mine ample means of ventilation, affording one hundred cubic feet per minute for each and every person employed in said mine, which shall be circulated around the main headings and cross headings to an extent that will dilute, carry off and render harmless the noxious gases generated therein; and all mines generating fire-damp shall be kept free of standing gas, and every working place shall be carefully examined every morning with a safety lamp by a competent person before any workmen are allowed to enter.

Mining boss to be employed.

Section 5. In order to better secure the proper ventilation of every coal mine, and promote the health and safety of the persons employed therein, the owner or agent shall employ a competent and practical inside overseer, to be called

His duties.

mining boss, who shall keep a careful watch over the ventilation apparatus, the air-ways, traveling-ways, pumps and pump timbers, and drainage, and shall see that as the miners advance their excavations, all loose coal, slate and rock overhead are carefully secured against falling in or upon the traveling-ways, and that sufficient timber is furnished of suitable lengths and sizes for the places where they are to be used, and placed in the working places of the miners; and it shall also be the duty of the mining boss to measure the air current at least once a week at the inlet and outlet and at or near the face of the heading, and keep a record of such measurements, and report the same to the inspector of his district once in every

Safety-lamps.

month; the safety lamps used for examining mines, or which may be used in working therein, shall be furnished by and

be the property of the owner of said mines, and shall be in the charge of the agent of such mine; and in all mines generating explosive gases the doors used in assisting or directing the ventilation of the mine shall be so hung and adjusted that they will close themselves, or be supplied with springs or pulleys so they cannot be left standing open, and bore-holes shall be kept not less than twelve feet in advance of the face of every working place, and when necessary on the sides, if the same is driven towards and in dangerous proximity to an abandoned mine or part of a mine suspected of containing inflammable gases, or which is inundated with water.

Doors.

Bore-holes.

Section 6. Any miners, workmen, or other persons, who shall intentionally injure any shaft, lamp, instrument, air-course, or brattice, or obstruct or throw open air-ways, or carry lighted pipes or matches into places that are worked by safety lamps, or handle or disturb any part of the machinery, or open a door and not close it again, or enter any place of the mine against caution, or disobey any order given in carrying out the provisions of this act, or do any other act whereby the lives or the health of persons, or the security of the mines or the machinery is endangered, shall be guilty of a misdemeanor, and may be punished in the manner provided in the sixteenth section of this act: all machinery about mines shall be properly fenced off, and the top of each shaft, and the entrance of every abandoned slope and air or other shaft shall be securely fenced off; and there shall be cut in the side of every hoisting shaft, at the bottom thereof, a traveling-way sufficiently high and wide to enable persons to pass the shaft in going from one side of the mine to the other without passing over or under the cage or other hoisting apparatus.

Punishment for misdemeanor by workmen, &c.

Machinery, tops of shafts, &c., to be fenced off.

Traveling-way to be cut in sides of hoisting shafts.

Section 7. If any person, firm, or corporation is, or shall hereafter be seized in his or their own right of coal lands, and it shall not be practicable to comply with the requirements of this act in regard to drainage and ventilation, by means of openings on his or their own lands, and the same can be done by means of openings on adjacent lands, he or they may apply by petition to the court of quarter sessions of the proper county, after ten day's notice to the owner or owners, their agent or attorney, setting forth the facts, under oath or affirmation, particularly describing the place or places where such opening or openings can be made, and that he or they cannot agree with the owner or owners of the land as to the amount to be paid for the privilege of

Proceedings for making openings on adjoining lands

Appointment of viewers.

making such opening or openings; hereupon the said court shall appoint three disinterested and competent citizens of the county to view the grounds designated, and lay out from the point or points mentioned in such petition a passage or passages for air and water, not more than sixteen feet in diameter, by the shortest and most convenient route to the coal of such person, firm, or corporation, preferring in all cases an opening through the coal strata where the same is practicable; the said viewers shall at the same time assess the damages to be paid by the petitioner or petitioners to the owner or owners of such land for the privilege of making said openings, which damages shall be fully paid

Their duties.

before such opening is made; it shall be the duty of said viewers to give notice by at least three written or printed hand-bills, posted on the premises at least five days prior to the time of meeting to attend to the duties of their appointment, setting forth distinctly the time, place and object of their meeting, and also to give personal notice to the par-

Report.

ties, their agents and attorneys, where it can be done, and shall, within thirty days after their appointment, make report of their proceedings to said court, stating the amount of damages awarded, accompanied by a map or plan of said openings; and if no appeal be taken to said court within ten days after notice to the opposite party in interest of the filing thereof, it shall be marked confirmed by the clerk, and the petitioner or petitioners may proceed to make said open-

Costs.

ing or openings; the pay of the viewers and other costs shall be the same as in road cases, and shall be paid by the petitioner or petitioners.

Appointment of board of examiners.

Section 8. As soon as practicable after the passage of this act, the persons exercising the office of president judge of each of the several courts of common pleas in the Fifth, Tenth, and Fourth judicial districts, shall appoint one reputable miner of known experience and in practice at the time, (in the Fifth district the president judge of the court of common pleas number one shall make said appointment,) and the governor shall appoint two mining engineers of like repute and experience and practice at the time, who shall con-

Duties of board.

stitute a board of five examiners, whose duty it shall be to inquire into the character and qualification of candidates for the office of inspector of mines under the provisions of this act; the examiners first appointed in pursuance of this section shall meet in the city of Pittsburgh on the fifteenth day of May next, and after being duly organized, having taken and subscribed before any officer authorized to ad-

minister the same the following oath, namely: "We the undersign do solemnly swear (or affirm) that we will perform the duties of examiners of applicants for appointment as inspectors of bituminous coal mines to the best of our abilities, and that in recommending or rejecting said applicants we will be governed by the evidence of qualifications to fill the position under the law creating the same, and not by any consideration of political or other personal favors; that we will certify all whom we may find qualified according to the true intent and meaning of the act, and none others, to the best of our judgments," shall proceed to the examination of those who may represent themselves as candidates for said office; and they shall certify to the governor the names of all such applicants as they shall find competent to fill the office under the provisions of this act, which names, with the certificate and the oath of the examiners, shall be mailed to the secretary of the commonwealth to be filed in his office, and shall be valid when recommended by four of the examining board; the qualification of candidates for said office of inspector of mines to be inquired into and certified by said examiners, shall be as follows, namely: They shall be citizens of the United States, of temperate habits, of good repute as men of personal integrity, shall have attained the age of thirty years, and shall have had at least five years' experience in the workings of the bituminous coal mines of Pennsylvania, and upon the examination they shall give evidence of such theoretical as well as practical knowledge of the working of coal mines and noxious gases as will satisfy the examiners of their capability and fitness for the performance of the duties imposed upon inspectors of mines by the provisions of this act; the board of examiners shall also at their said meeting divide the bituminous coal counties of the State into three inspection districts, as nearly equal in regard to the labor to be performed as is possible, taking into consideration the number of mines and the extent of territory; at every subsequent calling of the board of examiners this division may be revised as experience may prove to be advisable; the board of examiners shall each receive five dollars per day and all necessary expenses, to be paid out of the state treasury upon the filing of the certificates of the examining board in the office of the secretary of the commonwealth, as hereinbefore provided the governor shall, from the names so certified appoint one person to be inspector of mines for each district as fixed by

Qualifications of inspectors.

Division of State into districts.

Compensation of examining board.

Governor to appoint inspectors.

Terms of office.

Vacancies.

Vacancies in the examining board.

New board to be appointed every four years.

Salaries of inspectors.

Instruments, chemical tests, and stationery.

Plans, &c., to be delivered to successors.

Inspectors to give bonds.

the examiners in pursuance of the act, whose commission shall be for four years, to be computed from the fifteenth of May next; as often as vacancies occur by death, resignation or otherwise, in said offices of inspectors of mines, the governor shall fill the same by appointment for the unexpired term from the names on file in the office of the secretary of the commonwealth, until the number shall be exhausted, and whenever this shall occur the governor shall cause the aforesaid board of examiners to meet, who shall examine persons that may present themselves for the vacant office of inspector in the same manner as herein provided, and the board of examiners shall certify to the governor one person, to be commissioned by him for the office of inspector for the unexpired term; and any vacancies that may occur in the examining board shall be filled in the district where the vacancy occurred; and every four years the governor shall appoint two mining engineers as before, and shall notify the persons exercising the office of president judge of the courts of common pleas of the judicial districts of the state containing bituminous coal mines, selecting them in such order as to allow each district an equal share of such appointments, each to appoint one miner, and the five so appointed shall constitute a new board of examiners, whose duties, term of service and compensation, and vacancies that may happen, shall be the same as those provided for by this section; and from the names that may be certified by them, the governor shall appoint the inspectors provided for in this act; nothing in this act shall be construed to prevent the re-appointment of any inspector of bituminous mines; the inspectors of mines shall receive for their services an annual salary of two thousand dollars, to be paid quarterly by the state treasurer, and they shall reside in the district for which they shall be appointed; each inspector is hereby authorized to procure such instruments and chemical tests, and stationery, from time to time, as may be necessary to the proper discharge of his duties under this act, at the expense of the state, which shall be paid by the state treasurer upon accounts duly certified by him and audited by the proper department of the state. All instruments, plans, book memoranda, notes, et cetera, pertaining to the office, shall be the property of the state, and shall be delivered to their successors in office.

Section 9. Each inspector of bituminous coal mines shall, before entering upon the discharge of his duties, give bond in the sum of five thousand dollars, with sureties to be ap-

proved by the president judge of the district in which he resides, conditioned for the faithful discharge of his duty, and take an oath (or affirmation) to discharge his duties impartially and with fidelity to the best of his knowledge and ability. And be sworn.

Section 10. No person who shall act as a manager or agent of any coal mine or as a mining engineer, or to be interested in operating a coal mine, shall at the same time act as an inspector of mines under this act. Disqualifications.

Section 11. For any injury to person or property occasioned by any violation of this act, or any wilful failure to comply with its provisions by any owner, lessee or operator of any coal mine or opening, a right of action against the party at fault shall accrue to the party injured for the direct damage sustained thereby; and in any case of loss of life by reason of such violation or wilful failure, a right of action against the party at fault shall accrue to the widow and lineal heirs of the person whose life shall be lost, for like recovery of damages for the injury they shall have sustained. Liability of owner, &c., for damages.

Section 12. The inspectors of bituminous coal mines shall each devote the whole of his time to the duties of his office; it shall be his duty to examine the mines in his district as often as possible to see that all the provisions of this act are observed and strictly carried out; and he shall make a record of all examination of mines, showing the condition in which he finds them, the number of mines in his district, the number of persons employed in and about each mine, the extent to which the law is obeyed, the progress made in the improvement sought to be secured by the passage of this act, the number of accidents and deaths resulting from injuries received in the mines, and all other facts of public interest concerning the condition and progress of mining in his district, which record shall, on or before the first Monday of each month, together with all matters and things furnished him in accordance with the provisions of this act, be filed in the office of the Secretary of Internal Affairs, to be by him recorded and included in the annual report of his department; he shall also from the time of his commission make strict and careful inquiry and examination into the condition and drainage of the mines. Duties of inspectors. Inspectors to keep a record. Report to Secretary of Internal Affairs.

Section 13. That the inspectors may be enabled to perform the duties herein imposed upon them, they shall have the right at all times to enter any bituminous coal mine to make examination or obtain information; they shall notify Inspectors may enter mines at all times.

To notify owners, &c., of violations of act.

the owners, lessees or agents immediately of the discovery of any violations of this act and of the penalty imposed thereby for such violation, and in case of such notice being disregarded for the space of ten days they shall institute a prosecution against the owner, owners, agent or lessee of the mine, under the provisions of section sixteen of this act; in any case however where, in the judgment of the inspector of either district, delay may jeopardize life or limb, he shall at once notify the inspectors of the other districts, whereupon they shall at once proceed to the mine or colliery where the danger exists and examine into the matter, and if after full investigation thereof they shall be agreed in the opinion that there is immediate danger, they shall apply in the name of the commonwealth to the court of common pleas of the county in which the mine may be located, for an injunction to suspend all work in and about such mine or colliery; whereupon said court, if the cause appear to be sufficient, after hearing the parties and their evidence as in like cases, shall issue their writ to restrain the working of said mine or colliery until all cause of danger is removed; and the costs of said proceedings, including the charges of attorney prosecuting said application, shall be borne by the owner of the mine or colliery: *Provided*, That no fee exceeding the sum of twenty-five dollars shall be taxed in any one case for the attorney prosecuting such case: *Provided further*, That if said court shall find the cause not sufficient, then the case shall be dismissed, and the cost shall be borne by the inspector instituting the proceeding, or the county, in the discretion of the court.

And institute proceedings against them.

All the inspectors to examine a mine in certain cases.

May apply to court for injunction.

Court to restrain working of mine.

Costs.

Reports of accidents to be made.

Section 14. Whenever by reason of any explosion or other accident in any bituminous coal mine or the machinery connected therewith, loss of life or serious personal injury shall occur, it shall be the duty of the person having charge of such mine or colliery to give notice thereof forthwith to the inspector of the district, and if any person is killed thereby to the coroner of the county, who shall give due notice of the inquest to be held; it shall be the duty of the inspector upon being notified as herein provided, to immediately repair to the scene of the accident and make such suggestions as may appear necessary to secure the future safety of the men; and if the results of the explosion do not require an investigation by the coroner he shall proceed to investigate and ascertain the cause of the explosion or accident, and make a record thereof, which he shall file as provided for; and to enable him to make the investiga-

Notice to coroner.

Duties of inspectors.

Their powers.

tion, he shall have power to compel the attendance of persons to testify, and to administer oaths or affirmations; the cost of such investigation shall be paid by the county in which the accident occurred, in the same manner as costs of inquests held by the coroners or justices of the peace are paid.

Costs of investigations.

Section 15. The court of common pleas of any county in the proper district, upon a petition signed by not less than fifteen reputable citizens, not less than five of whom shall be miners, owners or lessees of mines, and with the affidavit of one or more of said petitioners attached, setting forth that any inspector of mines neglects his duties or is incompetent, or that he is guilty of a malfeasance in office, shall issue a citation in the name of the commonwealth to the said inspector to appear, on not less than fifteen days' notice, upon a day fixed before said court, at which time the court shall proceed to inquire into and investigate the allegations of the petitioners; if the court find that the said inspector is negligetful of his duties or is incompetent to perform the duties of his office, or that he is guilty of malfeasance in office, the court shall certify the same to the governor, who shall declare the office of said inspector vacant, and proceed in compliance with the provisions of this act to supply the vacancy; the costs of said investigation shall, if the charges are sustained, be imposed on the inspector; but if the charges are not sustained they shall be imposed upon the petitioners.

Inspectors to be liable to removal.

Section 16. The neglect or refusal to perform the duties required to be performed by any section of this act by the parties therein required to perform them, or the violation of any of the provisions or requirements hereof, shall be deemed a misdemeanor, and shall, upon conviction, be punished by fine of not less than two hundred dollars nor not exceeding five hundred dollars, at the discretion of the court, and all penalties recovered under this act shall be paid into the treasury of the state.

Penalties for neglect of duties or violating act.

Section 17. The inspectors shall exercise a sound discretion in the enforcement of the provisions of this act; and should the operator or owner be dissatisfied with any decision at which the inspector may arrive, it shall and may be lawful for such operator or owner to apply by petition to the court of quarter sessions of the county wherein such mine is located, and said court shall thereupon appoint three reputable competent and disinterested persons, whose duty it shall be to forthwith examine such mines, and hear the

Proceedings in cases of dissatisfaction with decisions of inspectors.

proofs and allegations of the inspectors and operator or owner, and make such report under oath to court of the facts as they exist, together with their opinion thereon; and if said report sustains the decisions of the inspector, then the party making application to court shall pay the costs of such proceeding, and if the report is against such decision then the inspector shall pay the costs, unless the court order otherwise; the report of the said board shall become absolute unless exceptions thereto shall be filed within ten days after notice of the filing thereof to the owner, operator or inspector, and if exceptions are filed the court shall hear and determine the same, and the decision shall be final and conclusive.

Act not to apply to certain mines.

Section 18. The provisions of this act shall not apply to any mine where ten men or a less number are employed, or to any mine which does not generate fire damp, black damp, or other dangerous or noxious gases.

Repeal.

Section 19. All laws or parts of laws inconsistent with any of the provisions of this act are hereby repealed.

APPROVED, April 18th, 1877.

AN ACT

To amend an act, entitled "An act to provide the means for securing the health and safety of persons employed in the bituminous coal mines of Pennsylvania.

Repeal of certain provisions.

Section 1. Be it enacted, &c., That the last clause of the eighteenth section of the act of general assembly, entitled "An act to provide the means for securing the health and safety of persons employed in the bituminous coal mines of Pennsylvania, approved April 18th, 1877, after the word "employed" in the second line of said section, which is as follows: "Or to any mine which does not generate fire-damp, black-damp, or other dangerous or noxious gases," is hereby repealed.

APPROVED, May 25th, 1878.

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